



BALAS ROJAS

WORKSHOP MANUAL
ATV DXR 200





INTRODUCTION

The work-shop (or service) manual is mainly for NACIANAL MOTOR, S.A.U. Area importers and their network dealers & service stations to fulfill the necessary maintenance and repairs information.

1. Due to continuous launch of new models, formation in this manual may be subject to change without notice. For any further information regarding this manual or the products, please contact the Territorial Distributor or Area Importer.
2. All details of this manual are based on the latest product information available at the time of approval for printing. Maker reserves the right to make changes at any time without notice and without incurring any obligation.
3. This manual has been specially prepared to provide the necessary information for the Area importer, dealers, and their qualified mechanics of proper maintenance and repair details.
4. This manual covers all series of products (RAM 125/150) that user has to find out what details belong to.

By: Sales and Service Department NACIANAL MOTOR, S.A.U.

* The images reflected in this manual can vary of the acquired pattern.

For Area Importer and Territorial Distributor:

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NACIONAL MOTOR, S.A.U.

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IMPORTANT SAFETY MESSAGE

1-1 IMPORTANT SAFETY MESSAGE

BE SURE TO INFORM THE END-USER FOLLOWS;

1. TO READ THE OWNER MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING THE ATV. . MAKE SURE THE END-USER UNDERSTAND ALL INSTRUCTIONS.
2. PAY ATTENTION TO THE WARNING AND CAUTION. LABELS ON THE ATV.
3. ANY ATV OVER 90cc SHOULD NOT BE RIDDEN BY ANYONE UNDER 16 YEARS OF AGE. (or REFER THE LOCAL RIDING LAWS AND REGULATIONS)

1-2. IMPORTANT INFORMATION

FAILURE TO FOLLOW THE WARNINGS CONTAINED IN THE OWNER MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.

The important information shown in this manual in texts or symbols is described as follows;

Failure to follow " 1 WARNING " instructions could result in severe injury or death to the ATV rider, an on-looker, or a worker inspecting or repairing the ATV.

" CAUTION " marks special precautions that must be taken to avoid damage to the ATV.

" NOTE " provides principal information.

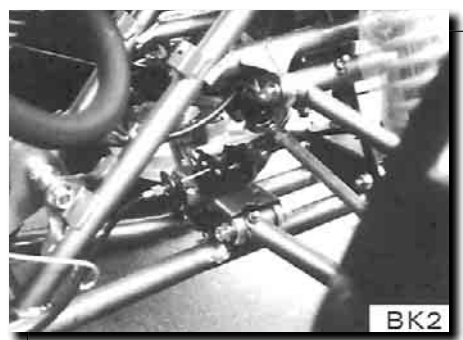
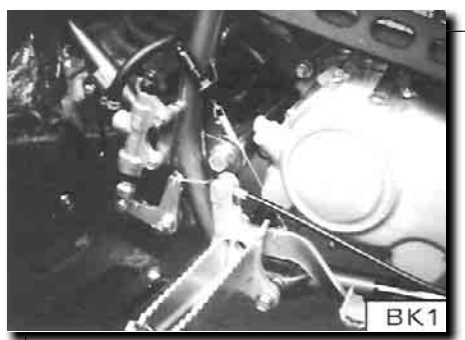
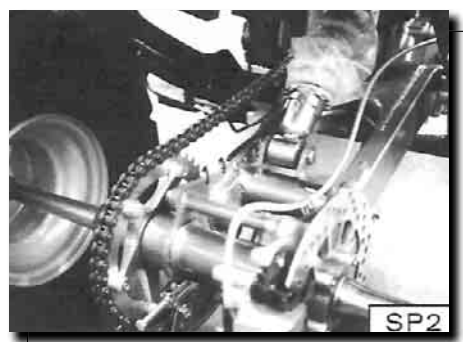
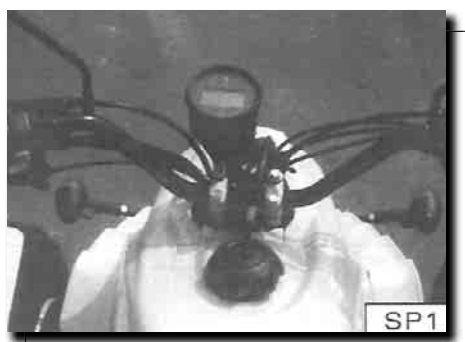
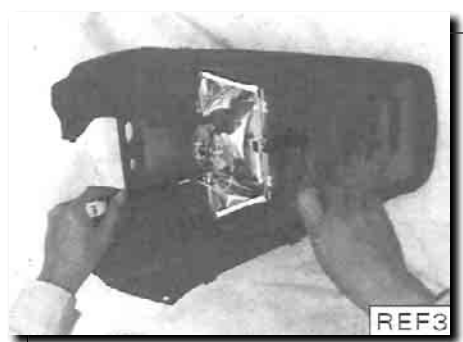
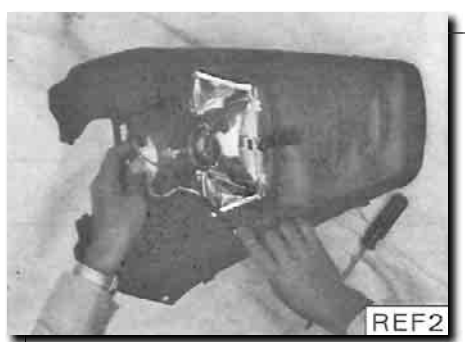
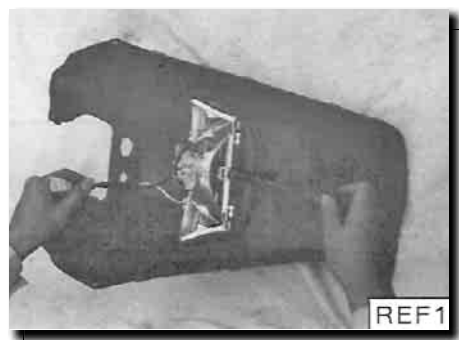
" OPTION or APPENDIX " provides other specification of product.

1-3. IMPORTANT NOTICE

The ATV is designed and built for OFF-ROAD use only. It is illegal and risky to manual this ATV on any public street, road or highway. Any Working Machine or On-Road base usage should follow the area laws and regulations, which all details should be provided and informed by each Area Importer.

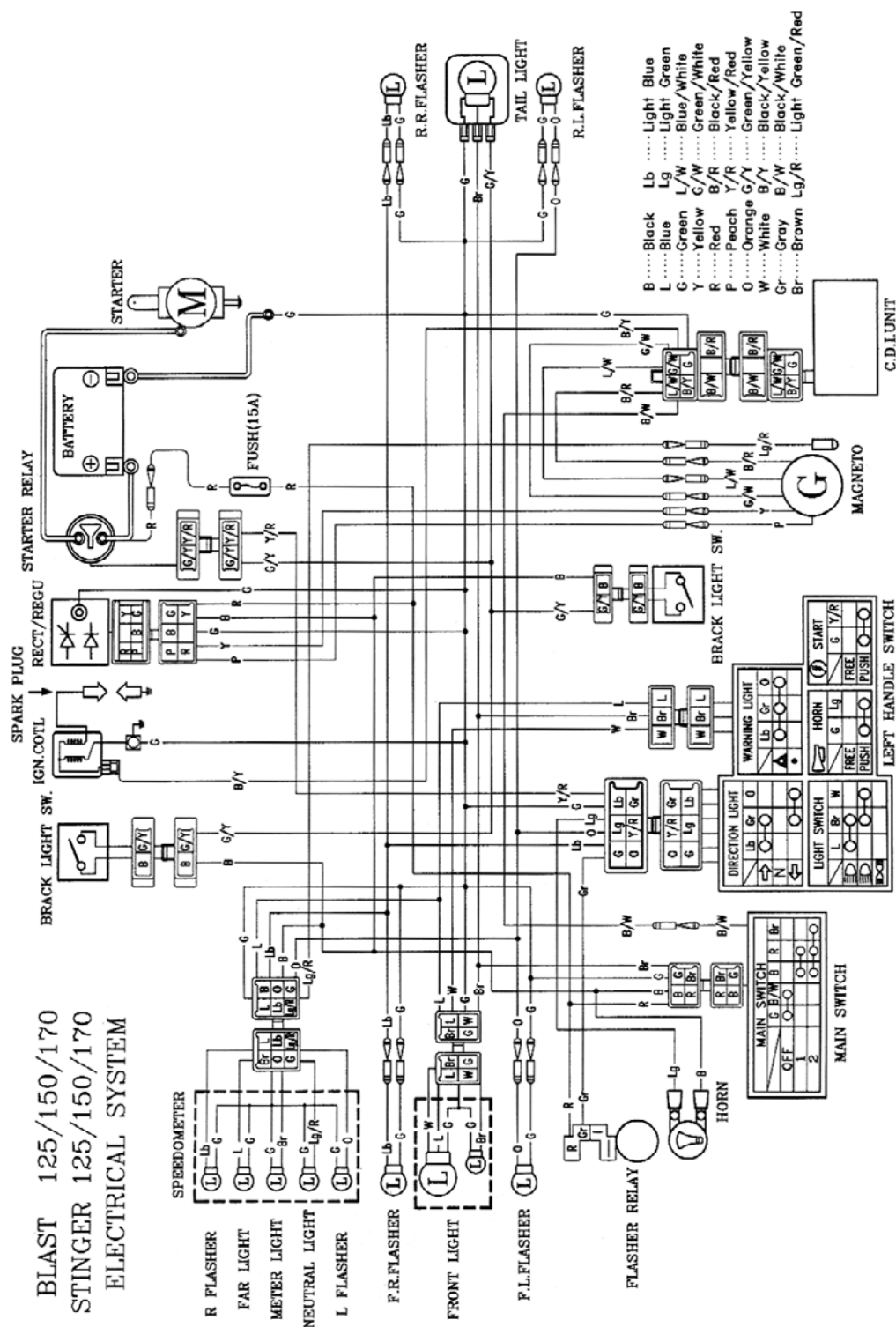
Be sure to check the local area riding laws and regulations before riding this ATV.

IMPORTANT SAFETY MESSAGE



IMPORTANT SAFETY MESSAGE

BLAST 125/150/170
STINGER 125/150/170
ELECTRICAL SYSTEM



GENERAL INFORMATION

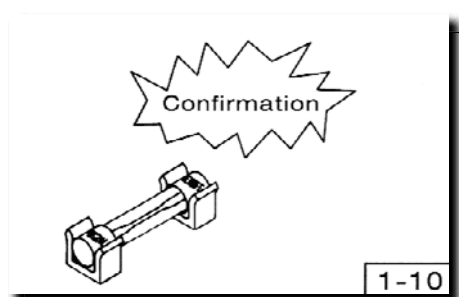
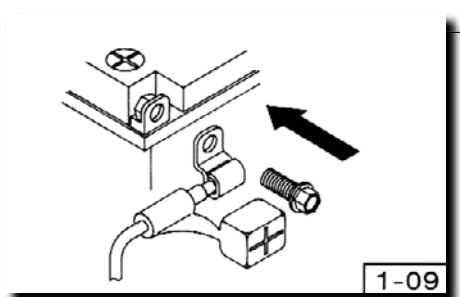
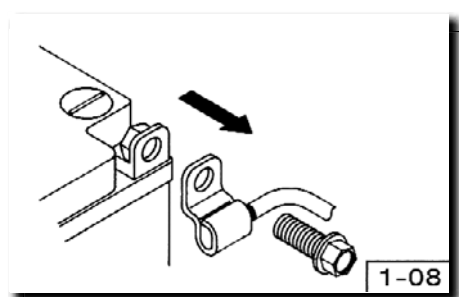
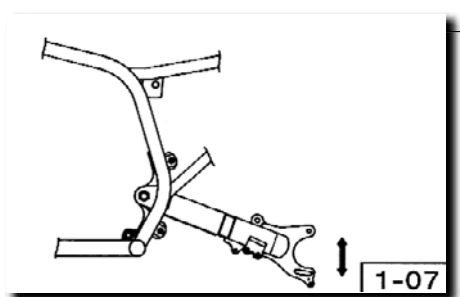
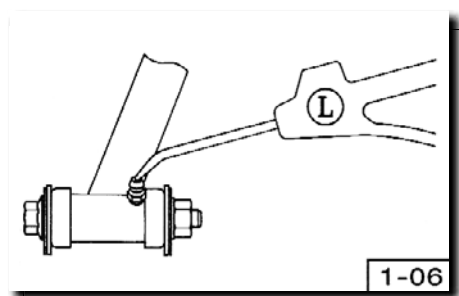
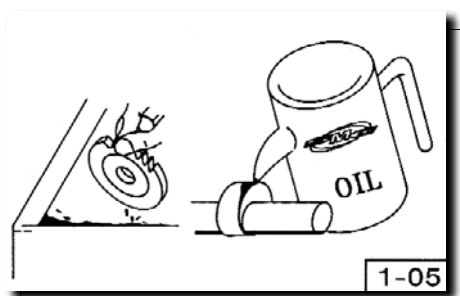
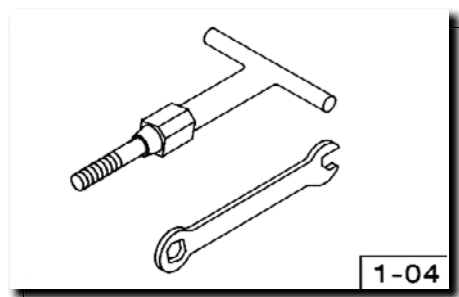
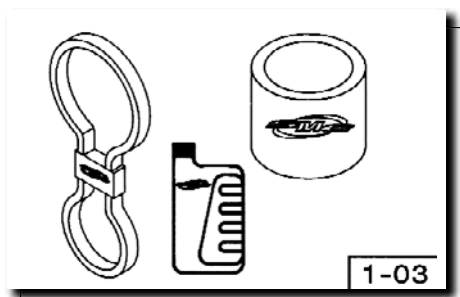
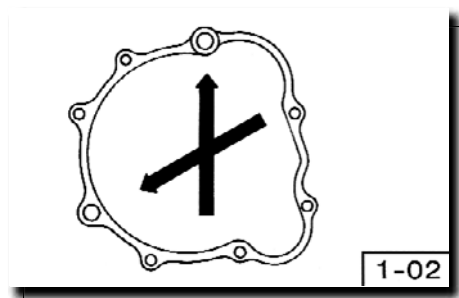
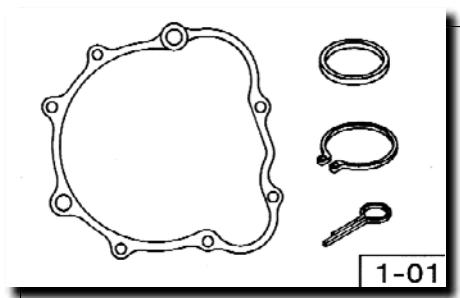
PART 1. GENERAL INFORMATION

1-1. SERVICE PRECAUTIONS

01. Be sure to use the new gaskets, o-rings, ring clamps, cotter pins... during the re-assembly or any service. (Fig. 1-01).
02. When tightening bolts, screws, or nuts, should start with large diameter bores to smaller ones. Be tighten to the specified torque diagonally. (Fig. 1-02)
03. Only use genuine parts and lubricants as Maker's suggestion (Fig. 1-03)
04. On servicing vehicle, be sure to use the special or common tools (Fig. 1-04)
05. After disassembly, be cleaned all the removed parts. Lubricate sliding surfaces with engine oil on engine parts before reassembly (Fig. 1-05).
06. Apply designated greases and lubricants to the specified lubrication points. (Fig. 1-06)
07. After reassembly, check all parts for proper tightening and operation. (Fig. 1-07)
08. Disconnect battery negative (-) terminal before operation. (Fig. 1-08)
09. When connecting the battery, the positive (+) terminal should be connected first. After connection, apply grease to battery terminals. The terminal caps shall be installed securely. (Fig. 1-09)
10. If the fuse is burned out, only replace the new fuse with the specified capacity. (Fig. 1-10)
11. When using a spanner or other tools, make sure not to damage the vehicle's surface.
12. After service operation, check all connecting points, fasteners and lines for proper connection and installation.



GENERAL INFORMATION



GENERAL INFORMATION

1-2. BRIEFING SERVICE INFORMATION

WARNING

TO AVOID THE ENGINE RUNNING DURING REPAIR OR SERVICE, THE EXHAUST SMOKE CONTAINS POISONOUS CARBON MONOXIDE GAS WHICH MAY CAUSE SERIOUS INJURY OR DEATH.

SOLUTION

1. Never run the engine in a close area.
2. If need to run the engine, be sure the working area is well ventilated and do not allow any flames or spark in working area.

1-2-1. Identification numbers(Fig. 1-11, I-IIA)

01. The vehicle identification number (VIN) marks on the frame.
02. Engine number is marked on the engine.

1-2-2. Engine : details refer to Pare 4

- | | |
|----------------------------|-----------------------------------|
| 01. Cylinder compression: | 13 Kg./cm ² |
| 02. Idle speed: | 1.500 +/- 100 rpm |
| 03. Valve clearance: | IN = 0,05 mm EX = 0,05 mm |
| 04. Ignition timing: | 15 degree/1,500 rpm |
| 05. Engine oil (4-stroke): | disassembly = 1.1L change = 1.0 L |

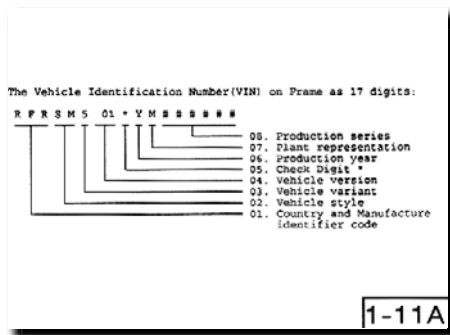
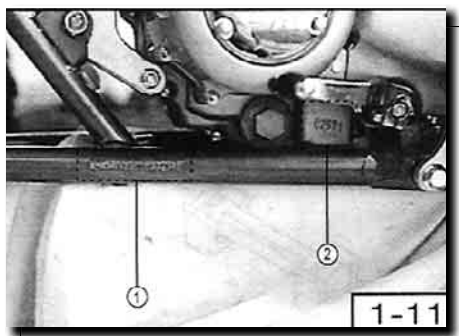
1-2-3. Chassis/Frame: details refer to Part 5

- | | |
|----------------------------------|----------------|
| 01. Front brake lever free play: | 10-20mm |
| 02- Rear brake pedal free play : | 10-20mm |
| 03. Brake fluid: | DOT 3 or DOT 4 |

1-2-4. Tire pressure --- details refer to Part 3

- | | |
|-----------------|--|
| 01. Front tire: | 30 kPa (0.30kgf/cm ² ; 4.4psi) |
| 02. Sear tire: | 25 kPa (0 .25kgf/cm ² ; 3 . 6psi) |

1-2-5. Lubrication portion -- refer to Pare 4 & 5 details





GENERAL INFORMATION

1-3. CLEANING

Clean ATV regularly to protect the surface finishes and check for the damage, wear, and oil or brake fluid leakage will enhance ATV overall appearance and general performance.

01. Block off the end of the exhaust pipe to prevent water entry. Next, make sure the spark plug and fuel caps are fastened.

02. If engine case is greasy, apply de-greaser with a paint brush. Do not apply de-greaser to the chain, sprockets or wheel axles.

03. Use only enough pressure to rinse the dirt.

CAUTION

HIGH PRESSURE WATER OR AIR MAY DAMAGE CERTAIN PARTS SUCH AS WHEEL BEARINGS, BRAKES, TRANSMISSION SEALS AND ELECTRICAL DEVICES.

04. Use the cool water to remove dirt. Once the majority of the dirt has been taken off, wash all surfaces with warm water and mild, detergent-type soap.

05. Rinse the ATV off immediately with clean water and dry all surfaces with a chamois, clean towel or soft absorbent cloth.

06. Dry the chain and lubricate it to prevent rust.

07. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.

08. Automotive wax can be used on all painted and chrome plated surfaces. Avoid combination cleaner-waxes.

09. When finishing, start the engine and let it run for several minutes. Finally, test the brakes.

WARNING

POTENTIAL HAZARD: OPERATION WITH WET BRAKES AFTER WASHING.

AWARENESS

WET BRAKES MAY HAVE REDUCED STOPPING ABILITY, INCREASING THE CHANCE OF AN ACCIDENT.

SOLUTION

TEST THE BRAKES AFTER WASHING. APPLY THE BRAKES SEVERAL TIMES AT SLOW SPEEDS TO LET FRICTION DRY OUT THE LININGS.

GENERAL INFORMATION

1-4. STORAGE

Before long term storage (says 60 days or more), be sure to check the ATV for needed repairs and have it corrected.

01. Change engine oil and oil filter.
02. Drain the fuel from tank and carburettor.
03. Clean the spark plug and put about 20-25cc engine oil (SAE 10W30 or 20W40) into the cylinder. Start engine for a few seconds.
04. Spray anti-rusty (rust-inhibiting) oil into the inside of fuel tank.
05. Clean the drive chain thoroughly and lubricate it.
06. Lubricate all control cables.
07. Remove the battery. Be sure to re-charge battery before storage. Do not put the battery on hot or cold place.
08. Check the tire pressure and block up the frame to raise all wheels off the ground.
09. Wash and dry the ATV and wax all painting surfaces.
10. Cover a plastic bag over the exhaust pipe.
11. Do not apply oil to any rubber parts or the seat cover.

NOTE

MAKE ANY NECESSARY REPAIRS BEFORE STORING THE ATV.

SPECIFICATION

PART 2. SPECIFICATION

2-1. GENERAL SPECIFICATION

Dimension L/W/H:	1.610 / 1.35 / 1.010 mm or 63.4/40.7/39.7in
Seat height	770 mm or 30.3in
Wheel base	1.080 mm or 42.5in
Min. ground clearance	120 mm
Min. turning radius	3.000 mm

Weight (125/50) 152 Kg. / 154 Kg.

Engine	4 Stroke Air-Cooled
Cylinder	Single - Forward Inclined
Bore * Stroke	125 cc: 56,5 x 49,5 mm; 150 cc: 62 x 49,5 mm
Displacement:	124,5 cm ³ ; 149,5 cm ³
Carburettor	DTG-017 o PD-19D KEIHIN
Spark	DR-8EA NGK
Starting	Electric
Ignition	C.D.I.
Generator	ACG Fly Wheel Magneto
Battery	YUASA YTX 7A-BS
Engine Oil	4 Stroke (qualified synthetic oil)
Engine Oil capacity	1,10 l.
Air- Filter	Wet type element

Transmission	National 5 speeds
Primary reduction	Helical gear
Primary red. Ratio	4,055 (73/18T)
Secondary reduction	drive chain
Secondary red. Ratio	3,333 (40/12T)
Operation	Left foot operation

Gear ratio	
1st:	2,769 (36/13T)
2nd:	1,882 (32/17T)
3rd:	1,272 (28/20T) or 1,4 (28/20T)
4th:	1,130 (26/23T)
5th:	0,960 (24/25T)

SPECIFICATION

Clutch type Operation	Wet, multi-blade Left hand operation
Fuel type Fuel tank capacity Reserve fuel	Unleaded gasoline 8,0 L (1,76 Imp gal; 2,12 US gal) 2,0 L (0,44 Imp gal; 0,53 US gal)
Chassis type Caster angle Trail	Steel tube frame 9.0 degree 40mm (1.57 in)
Suspension (F/R) Shock absorber	double A wishbone/swing arm coil spring, oil damper
Brake system (F/R) Front drum brake Rear disc brake	double drum/single disc Right hand operation Right, foot operation
Rim Front Rear	steel 10 x 5,5 AT 8 x 8,0 AT
Wheel travel (F/R)	180mm (7.09in)/180mm (7.09in)
Headlight type Front Rear	bulb type 12V 18W/18W x 2 12V 21W x 1
Indicator (neutral)	12V 3,4W x 1
Fuse	15A, 250V

NOTE

THE ATV Z-S DESIGNED FOR OFF-ROAD USE MAINLY. TO MATCH DIFFERENT AREA REGULATION, ATV MAY CHANGE OR INSTALL EXTRA DEVICE TO MATCH AREA SPECIAL REQUIREMENT SUCH AS "WORKING MACHINE" OR "ON ROAD".

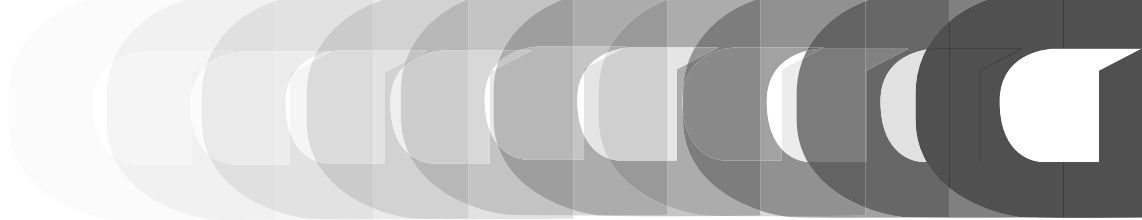
FOR ANY QUESTIONS REGARDING THE DIFFERENT SPECIFICATION, PLEASE CONTACT THE AREA IMPORTER.



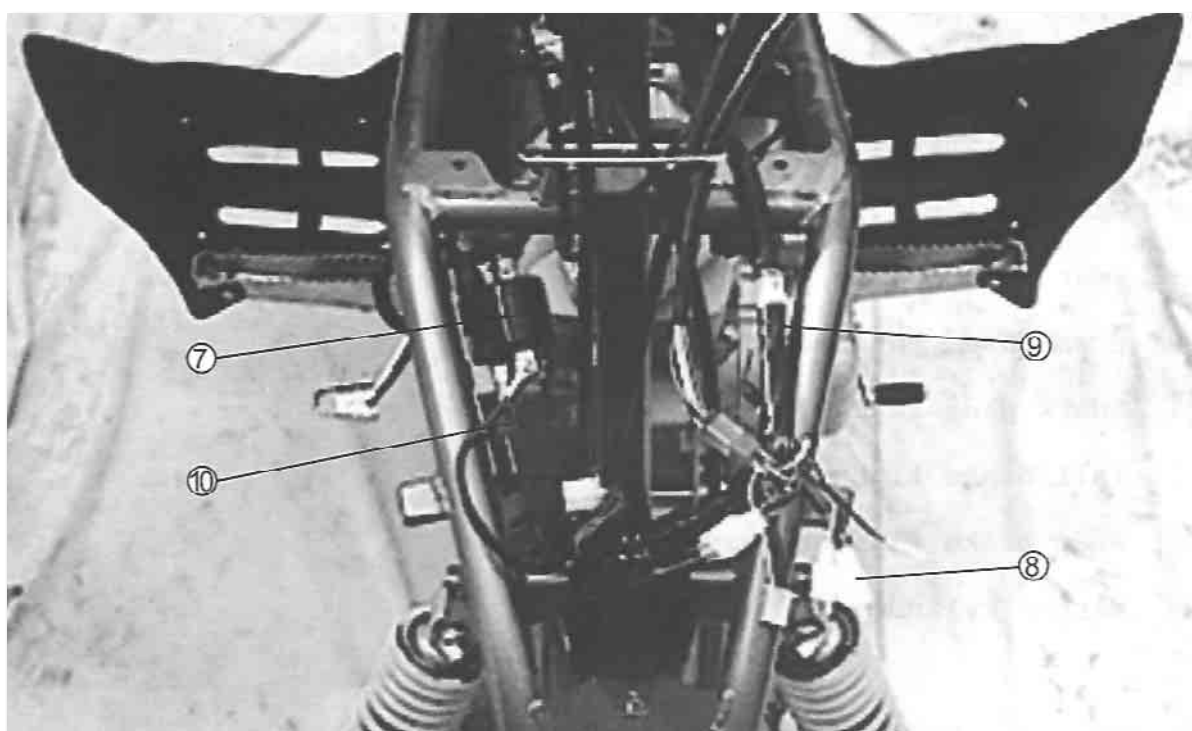
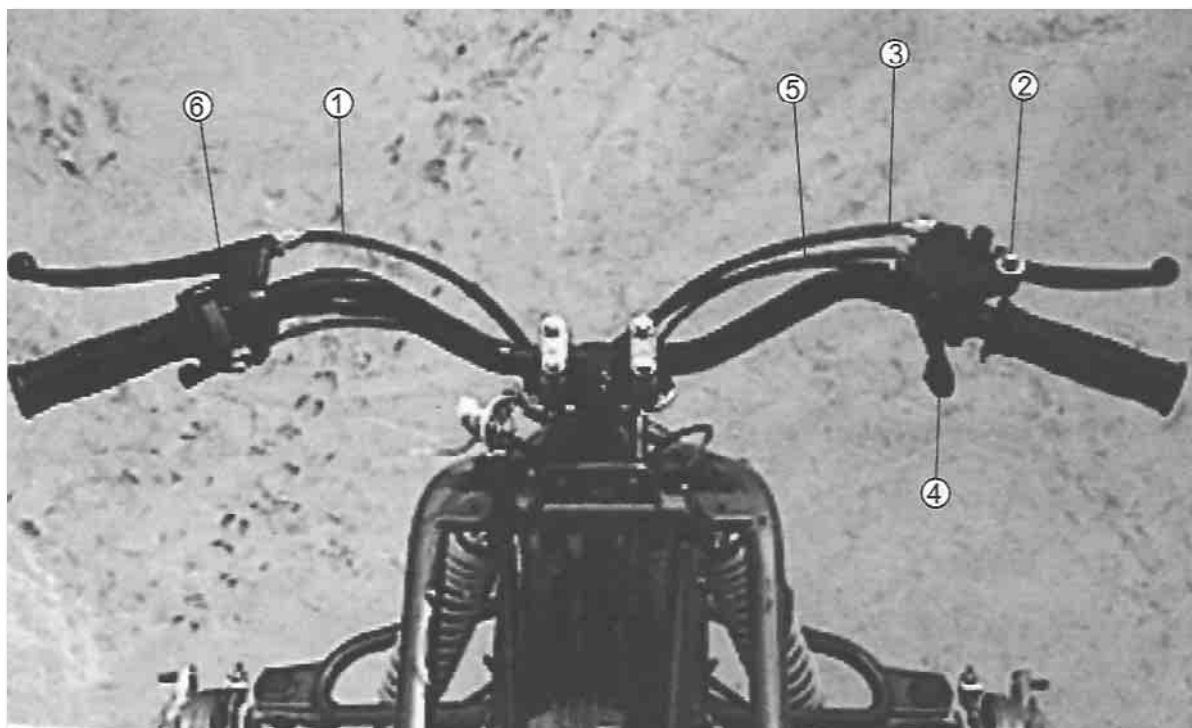
SPECIFICATION

2-2. LOCATION & CABLE ROUTING

01. Clutch cable
02. Parking brake cable
03. Front brake cable
04. Throttle switch lead
05. Throttle cable
06. Handlebar switch
07. Voltage regulator lead
08. Main switch
09. Wire harness
10. Ground lead
11. Front brake cable
12. Clutch cable
13. Main switch lead
14. Wire holder
15. Clamp
16. Carburettor overflow hose
19. Flywheel magneto lead
18. Cable guide
19. Rear brake cable
20. Crankcase ventilation hose
21. Spark plug lead
22. Tail/brake light lead
23. Rear brake fluid reservoir
24. Master cylinder

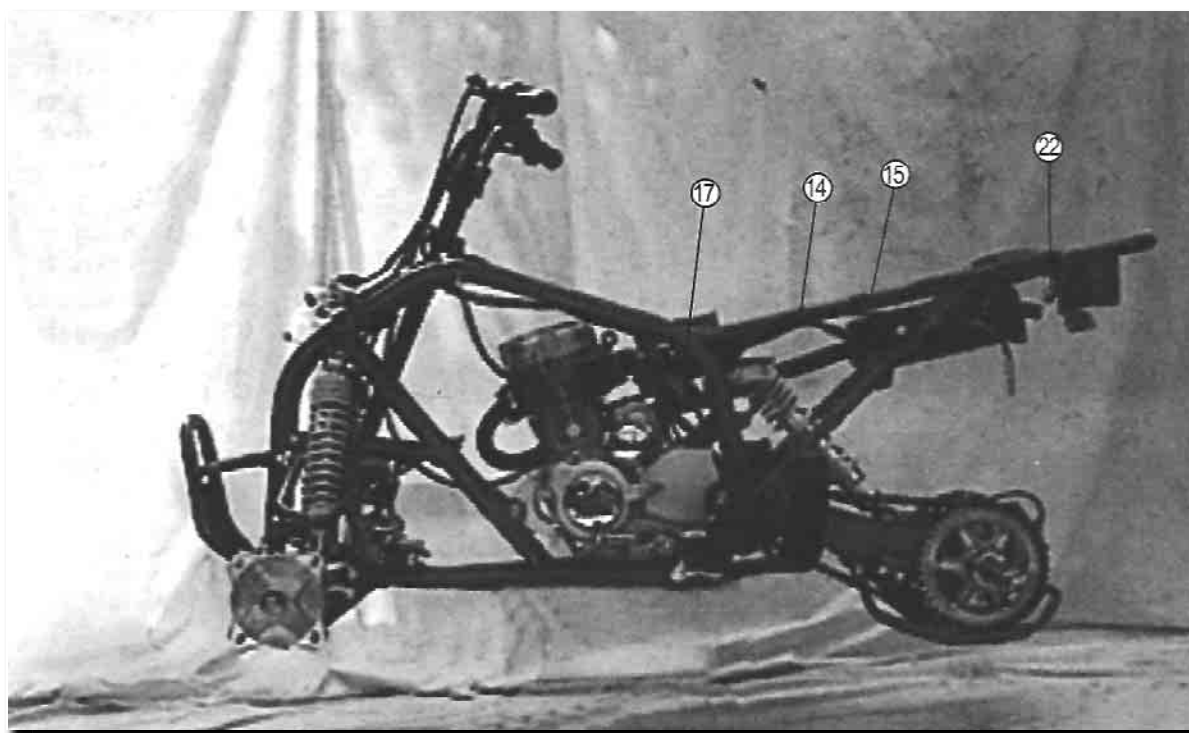
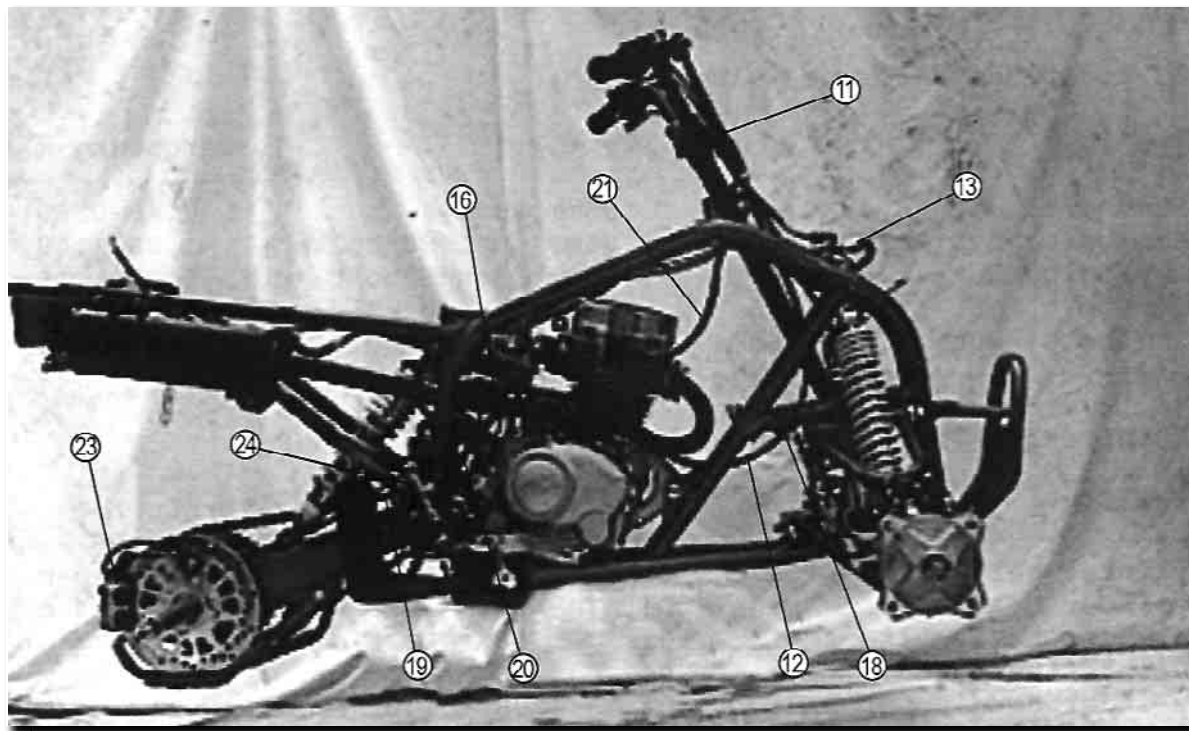


SPECIFICATION





SPECIFICATION



SPECIFICATION

2-3. TORQUE VALUE

2-3-1. Standard Torque Value

TYPE	TORQUE (KG.-M)	TYPE	TORQUE (KG.-M)
05mm bolt, nut	0,45 - 0,60	05mm screw	0,45 - 0,60
06mm bolt, nut	0,80 - 1,20	06-nim nut, SH bolt	1,00 - 1,40
08mm bolt, nut	1,80 - 2,00	06mm flange bolt. nut	0,70 - 1,10
10mm bolt, nut	3,00 - 4,00	08mm flange bolt. nut	2,00 - 3,00
12mm bolt, nut	5,00 - 6,00	10mm flange bolt. nut	3,50 - 4,50

2-3-2. Engine Pares Torque Value

ITEM	Q'TY	THREAD DIA.	TORQUE
Cylinder bolt	02	06 * 1,0 mm	0,8-1,2 Kg.-m
Cylinder head bolt	04	08 * 1,25 mm	2,8-3,2 Kg.-m
Cylinder head bolt	01	08 * 1,25 mm	1,8-2,3 Kg.-m
Cylinder head nut	04	08 * 1,25 mm	2,3-2,8 Kg.-m
Cylinder head cover bolt	03	06 * 1,0 mm	0,8-1,2 Kg.-m
Cylinder head oil-check bolt	01	06 * 1,0 mm	0,8-1,2 Kg.-m
Oil filter lock nut	01	16 * 1,0 mm	4,0-5,0 Kg.-m
Oil Rotor cap nut	03	05 * 0,8 mm	0,4-0,8 Kg.-m
Oil pump bolt	02	06 * 1,0 mm	0,7-1,1 Kg.-m
Carburettor lock bolt	02	06 * 1,0 mm	0,8-1,2 Kg.-m
Exhaust pipe joint lock nut	02	06 * 1,0 mm	0,8-1,2 Kg.-m
Rock arm lock bolt	03	08 * 1,25 mm	1,5-2,0 Kg.-m
Valve adjusting lock nut	02	06 * 0,75 mm	1,4-1,8 Kg.-m
Bearing push bolt	01	06 * 1,0 mm	0,8-1,2 Kg.-m
SPG stopper bolt	01	06 * 1,0 mm	0,8-1,2 Kg.-m
Oil filter screen cap	01	36 * 1,5 mm	1,5-3,0 Kg.-m
Oil bolt	01	12 * 1,5 mm	2,0-3,0 Kg.-m
Crankcase assembly bolt	10	06 * 1,0 mm	0,8-1,5 Kg.-m
L crankcase cover bolt	14	06 * 1,0 mm	0,8-1,2 Kg.-m
R crankcase cover bolt	11	06 * 1,0 mm	0,8-1,2 Kg.-m
ACG bolt	03	05 * 0,8 mm	0,4-0,7 Kg.-m
ACG coil lock bolt	02	05 * 0,8 mm	0,4-0,7 Kg.-m
Perno del generador A.C.	01	10 * 1,25 mm	4,0-5,0 Kg.-m

SPECIFICATION

2-3-3. Chassis Parts Torque Value

ITEMS (S)	Q'TY	THREAD DIA.	TORQUE
Steering column holder and frame	02	08 * 1,25 mm	2,3 Kg.-m
Steering column and handlebar	01	10 * 1,25 mm	3,0 Kg.-m
F. shock absorber (upper & lower)	04	10 * 1,25 mm	4,5 Kg.-m
Front arm (upper-frame)	02	10 * 1,25 mm	3,0 Kg.-m
Steering Knuckle and upper arm	02	10 * 1,25 mm	4,8 Kg.-m
Front arm (lower-frame)	02	10 * 1,25 mm	3,0 Kg.-m
Steering Knuckle and lower arm	02	10 * 1,25 mm	2,5 Kg.-m
Joint rod L & R	04	10 * 1,25 mm	3,8 Kg.-m
Tie-rod (locknut)	04	10 * 1,25 mm	2,5 Kg.-m
Tire-rod end and steering column	04	10 * 1,25 mm	3,0 Kg.-m
Front hub	02	14 * 1,50 mm	7,0 Kg.-m
Front wheel	08	10 * 1,25 mm	4,5 Kg.-m
Rear collar wheel	02	14 * 1,50 mm	12,0 Kg.-m
Rear wheel	08	10 * 1,25 mm	4,5 Kg.-m
Front shield bolt	03	08 * 1,25 mm	2,6 Kg.-m
Rear shield bolt	03	08 * 1,25 mm	2,6 Kg.-m
Engine Mounting			
F. engine and frame	01	12 * 1,25 mm	4,5 Kg.-m
Swing-Arm	01	08 * 1,50 mm	8,5 Kg.-m
Under guard	04	08 * 1,25 mm	2,3 Kg.-m
Chain supporter	02	08 * 1,25 mm	1,5 Kg.-m
Tensioner	02	08 * 1,25 mm	0,9 Kg.-m
Footrest L & R	04	08 * 1,25 mm	5,5 Kg.-m
Rear shock absorber (upper) bolt	01	08 * 1,25 mm	2,5 Kg.-m
Rear axles hexagon nut	(IN) 02	08 * 1,50 mm	5,0 Kg.-m
	(EX) 02	08 * 1,50 mm	19,0 Kg.-m
	(IN-EX) 02	08 * 1,50 mm	24,0 Kg.-m
Sprocket axles	06	08 * 1,50 mm	2,4 Kg.-m
Rear axles (upper and lower)	02	08 * 1,50 mm	5,0 Kg.-m
Disc and brake	04	08 * 1,25 mm	2,8 Kg.-m
Caliper	02	08 * 1,25 mm	2,8 Kg.-m
Caliper bracket	02	08 * 1,25 mm	2,3 Kg.-m
Exhaust pipe holder (frame)	02	08 * 1,25 mm	2,3 Kg.-m
Handlebar holder	02	08 * 1,25 mm	2,0 Kg.-m

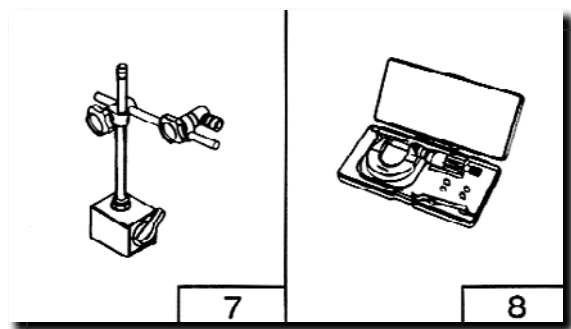
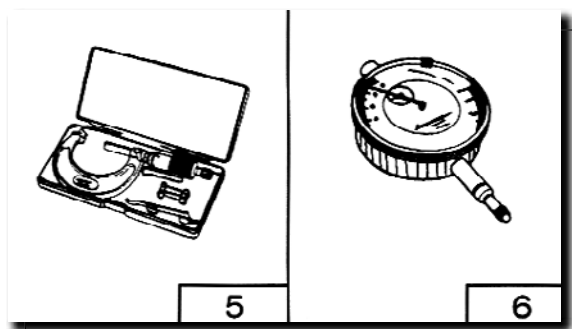
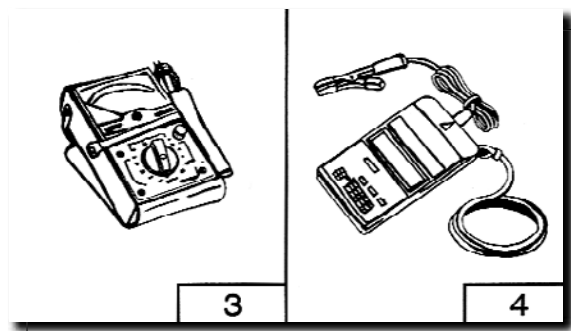
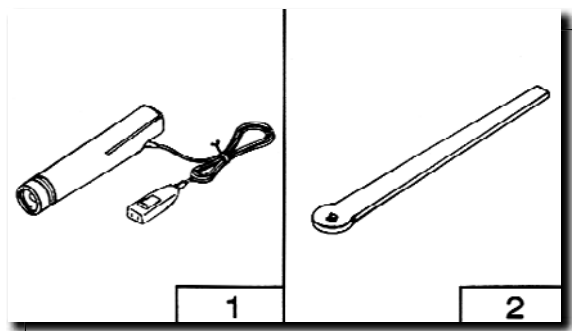
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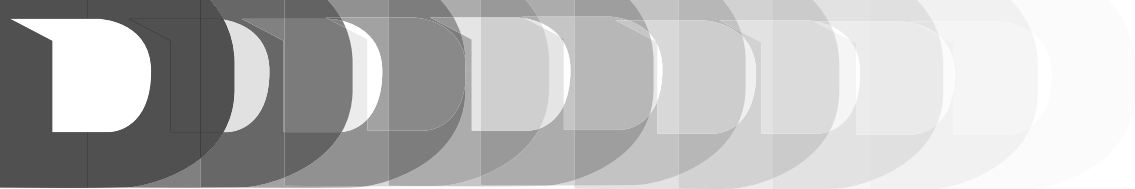
2-04. SPECIAL TOOLS -- OPTION (REFERENCE)

- | | |
|----------------------------|------------------------------|
| (01) ignition timing light | (02) cylinder valve adjuster |
| (03) pocket tester | (04) rpm tester |
| (05) micrometer (25-50mm) | (06) dial gauge (1/100mm) |
| (07) magnetic stand | (08) micrometer (0-25-mm) |
| (09) cylinder bore gauge | (10) V-block |
| (11) impact driver set | (12) snap ring pliers |
| (13) snap ring pliers | (14) thickness gauge |
| (15) thickness gauge | (16) bearing installer |
| (17) bearing installer | (18) piston pin puller |
| (19) bearing installer | (20) bearing installer |
| (21) crankcase installer | (22) bearing remover |
| (23) flywheel remover | (24) bearing remover |
| (25) bearing remover | (26) attachment (5 mm.) |
| (27) Bond (quick gasket) | |

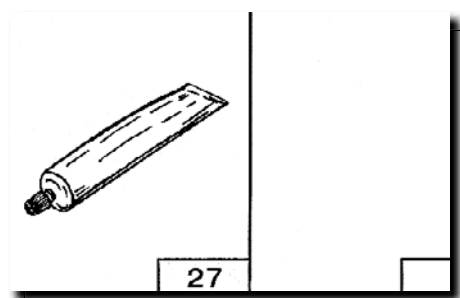
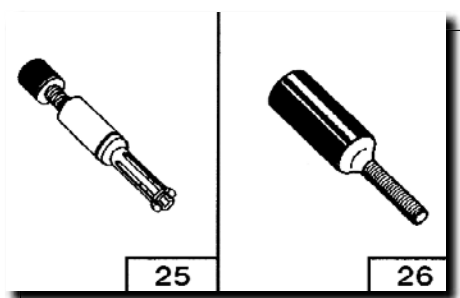
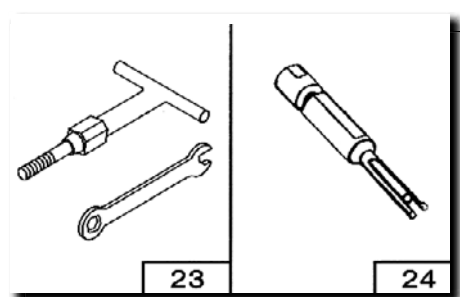
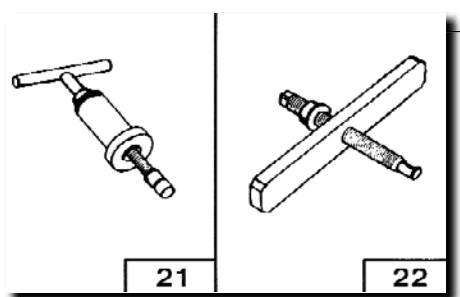
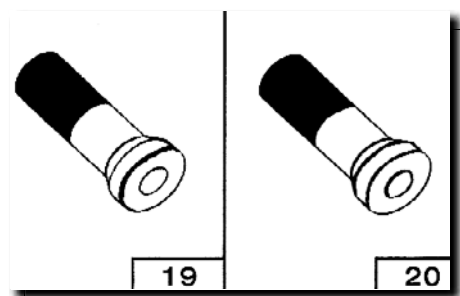
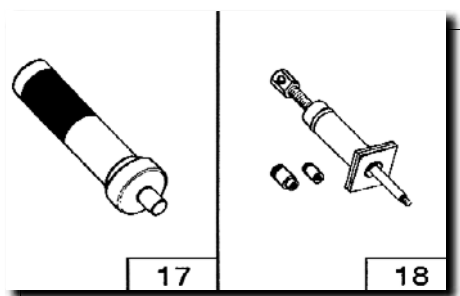
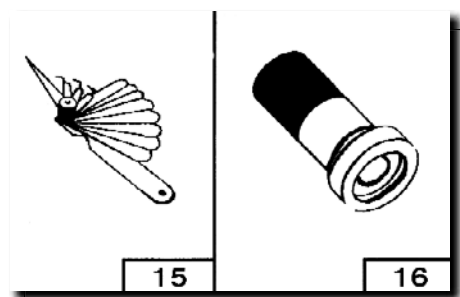
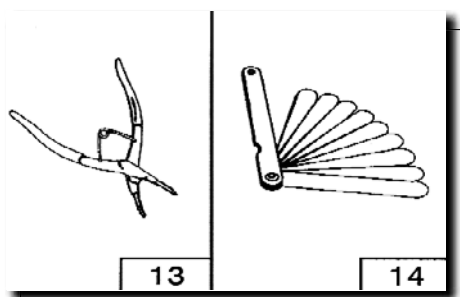
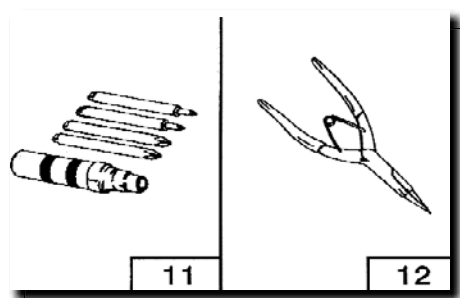
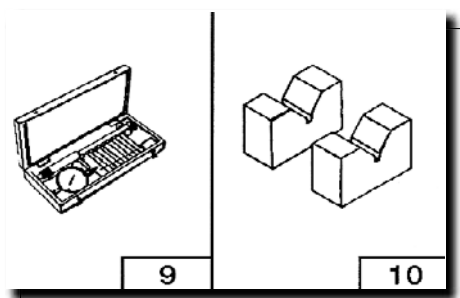
NOTE

1. THE REPLACEMENT OWNER'S MANUAL AND TOOL KIT ARE AVAILABLE FROM EACH AREA IMPORTER OR TERRITORIAL DISTRIBUTOR.
2. THE PARTS LISTS ARE AVAILABLE FROM EACH AREA IMPORTER OR TERRITORIAL DISTRIBUTOR.
3. BE SURE TO USE ONLY GENUINE MAKER PARTS FOR REPLACEMENT.





SPECIFICATION



PERIODIC MAINTENANCE

PART 3 . PERIODIC MAINTENANCE

3-01. PERIODIC INSPECTION, ADJUSTMENT, AND LUBRICATION WILL KEEP

ATV in the safest and best operation condition. Be sure to use only genuine maker parts for replacement.

WARNING 1

SERVICING AN ENGINE WHILE IT IS RUNNING.

AWARENESS 1

Hot surface or moving parts can harm people, Electrical components can be damaged.

SOLUTION 1

Turn off the engine when performing maintenance unless otherwise specified.

WARNING 2

STARTING OR RUNNING THE ENGINE IN A CLOSED AREA.

AWARENESS 2

Exhaust smoke is poisonous and may cause loss of consciousness and death within a short time.

SOLUTIONS 2

Only run ATV in an area with ample atmosphere.

3-02. OWNER'S MANUAL AND TOOL KIT (FIG. 3-02)

Be sure to keep the owner's manual and tool kit (which include low pressure tire gauge) all the time with ATV. The owner's manual and tool kit are part of the ATV and please keep it with the ATV for ready use, even when the ATV is resold.

- (1). Owner's manual
- (2). tool kits

NOTE

FOLLOWS ITEMS ARE AVAILABLE ON EACH IMPORTER:

1. THE REPLACEMENT OWNER'S MANUAL AND TOOL KIT.
2. THE PARTS LISTS AND SPARE PARTS. BE SURE TO USE ONLY GENUINE PARTS FOR REPLACEMENT.
3. SERVICE MANUAL IS WRITTEN FOR THE PROFESSIONAL TECHNICIANS,



PERIODIC MAINTENANCE

3-03. PERIODIC MAINTENANCE

Be sure to perform periodic inspections and maintenances as the manual suggestion.

- 1). "*" should be settled by local dealer or service station
- 2). "I" should, be inspect and clean, adjust, replaced or lubricate when it is necessary.
- 3). "C" clean
- 4). "R" replace
- 5). "A" Adjust
- 6). "L" Lubricate

PS1: 4-Stroke engine oil viscosity: SAE 10W-40. a qualified synthetic oil is strongly recommended. 4 stroke engine oil is a major factor affecting the engine performance and service life.

PS2: Air cleaner requires more frequently cleaning or replacement after riding on (1) dusty rain days (2) sand area (3) snow days.

PS3: Air cleaner tube requires more frequently checking on (1) very wet (2) muddy conditions.

PS4: Brake fluid replaces every 2 years period.

PS5: Check battery before riding ATV. Re-charge battery or replace a new battery, if it necessary.

CAUTION

BE SURE TO PERFORM THE INITIAL MAINTENANCE FOR CHANGING ENGINE OIL (A QUALIFIED SYNTHETIC 4-STROKE OIL IS STRONGLY RECOMMENDED), CLEANING ENGINE OIL FILTER,.. AFTER 1ST 20HRS (OR 100KM) OPERATION.

PERIODIC INSPECTION, ADJUSTMENT, AND LUBRICATION WILL KEEP ATV IN THE SAFEST AND BEST OPERATION CONDITION. BE SURE TO USE ONLY GENUINE MAKER PARTS FOR REPLACEMENT.

PERIODIC MAINTENANCE

TABLE OF PERIODICAL CHECK & SERVICE

ITEM'S	*	100 20	1000 100	2000 200	- (every 1000 km) - (every 100 hrs)
01. Engine oil		R	R	R	R PS1
02. engine oil filter		C	C	C	C
03. Engine idle speed	*	I	I	I	I
04. Value clearance	*	I	I	I	I
05. Spark plug			I	I	I
06. Air cleaner			C	C	C PS2
07. Air cleaner tube			I	I	I PS3
08. Carburettor & choke	*		I	I	I
09. Throttle lever	*		I	I	I
10. Speed limiter	*			I	I
11. Fuel line	*			I	I
12. Upper A arm	*		L	L	L
13. Lower A arm	*		L	L	L
14. Rear brake fluid	*		I	I	I PS4
15. Steering	*			I	I
16. Brake function	*	I	I	I	I
17. Brake shoe	*		I	I	I
18. Clutch system	*	I	I	I	I
19. Suspension	*	I	I	I	I
20. Wheel/tire	*	I	I	I	I
21. Nuts, bolts, fasteners	*		I	I	I
22. Drive chain		I	I	I	I
23. Battery		I	I	I	I PS5
24. Exhaust	*		I	I	I
25. Control cable	*	I	I	I	I

WARNING

ATV WITH IMPROPER MODIFICATIONS.

AWARNKNESS

Improper installation of accessories or modification of this ATV may change ATV handling condition which could lead to an accident.

SOLUTION

01. Never modify this ATV through improper installation or use of accessories.

02. All parts and accessories added to this ATV should be genuine maker or equivalent components designed for use on this ATV and should be installed and used according to instructions.

PERIODIC MAINTENANCE

3-04. EPIGONE OIL (4-STROKE ENGINE OIL ONLY) FIG. 3-02, 3-03, 3-04

Maker recommends engine oil viscosity: SAE 10W-40, a qualified synthetic oil is strongly recommended. Other viscosities shown in (Fig. 3-05) may be used when the average temperature in your area is within the indicated range.

NOTE

4 STROKE ENGINE OIL IS A MAJOR FACTOR AFFECTING THE ENGINE PERFORMANCE AND SERVICE LIFE. NONE-DETERGENT, VEGETABLE, OR CASTOR BASED RACING OILS ARE NOT RECOMMENDED. A QUALIFIED SYNTHETIC OIL IS RECOMMENDED.

CAUTION

BE SURE TO PERFORM THE INITIAL MAINTENANCE FOR CHANGING ENGINE OIL. CLEAN ENGINE OIL FILTER, ... AFTER 1ST 20HRS (OR 100KM) OPERATION.

3-04-1. Engine oil measurement

01. Place the ATV upright on a level place.
02. Warm up the engine for several minutes, and stop it.
03. Remove the oil cap/dipstick and wipe it off with a clean paper. Insert dipstick in filler hole without screwing it in.
04. Take dipstick and check the oil level.
05. The oil level should be between the maximum and minimum marks. If the level is low, add oil to the proper level.
05. Re-start the engine and warm up a few minutes. While warming up, if oil leakage, stop engine immediately and check.
07. Check the oil level.

CAUTION

BE SURE NO EXOTIC MATERIAL ENTERS THE CRANKCASE.

3-04-2. Engine oil replacement

01. Place the ATV on a level place.
02. Warm up the engine for several minutes, and stop it.
03. Place a container under the engine.
04. Remove the oil cap/ dipstick and drain plug off to drain oil,
05. Reinstall the drain plug and tighten it.
05. Fill 4-stroke engine oil and install the dipstick.
07. Re-start the engine and warm up for a few minutes. While warming up, if oil leakage is found, stop engine immediately, and check cause. Be sure no exotic material enters crankcase.
08. Check the oil level. The oil level should be between the maximum and minimum marks.

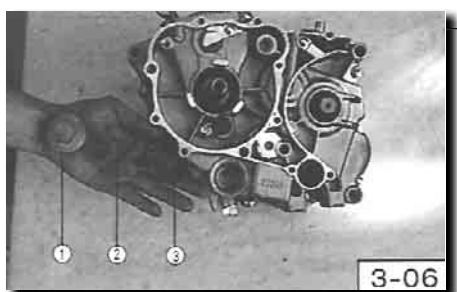
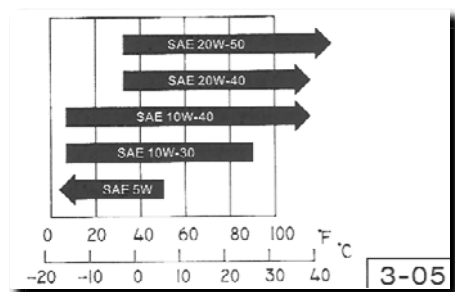
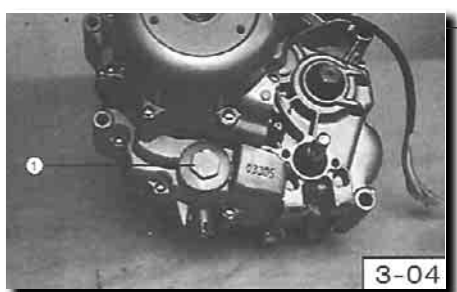
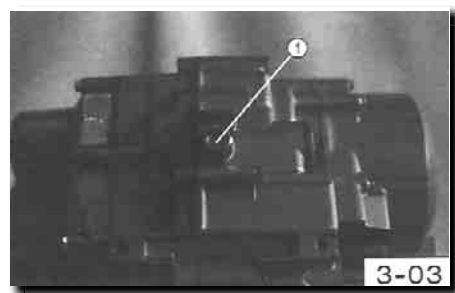
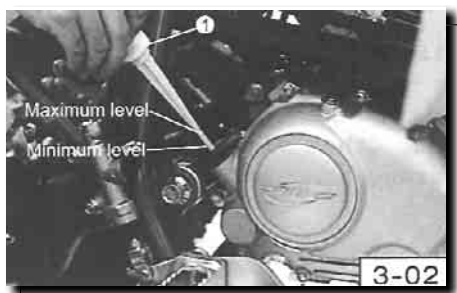
NOTE

ENGINE OIL CAPACITY AT CHANGE 1.0L AT DISASSEMBLY 1.1L

CAUTION

WHEN REPLACING ENGINE OIL. IT IS NECESSARY TO CHECK SC CLEAN ENGINE OIL FILTER. BE PUT SPRING OF OIL FILTER ON RIGHT POSITION (FIG. 3-06).

PERIODIC MAINTENANCE



PERIODIC MAINTENANCE

3-05. SPARK PLUG INSPECTION (FIG. 3-07, 3-08)

Standard spark plug:

NGK DR-8EA o D-8EA

01. Remove the spark plug (1) (Fig. 3-07).

02. Check the spark plug for wear, fouling deposits and cracks.

03. Remove the fouling deposits with a wire brush.

04 . Measure the spark plug gap: 0.6-0.7mm (0.024 - 0.03 in) Fig. 3-08.

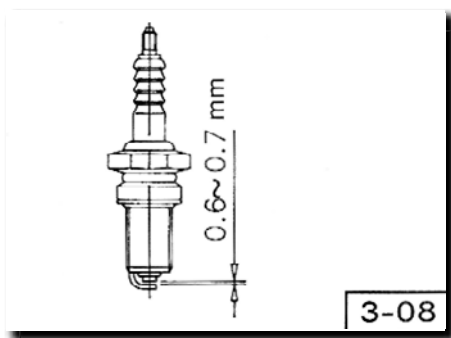
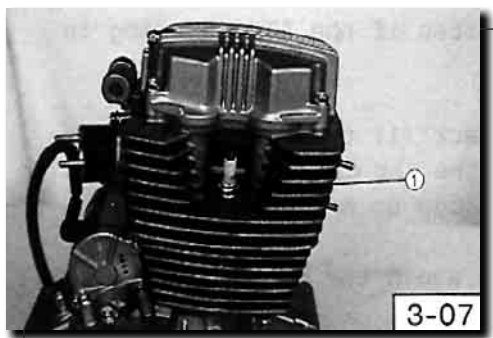
Before installing the spark plug, measure the electrode gap with a feeler gauge and adjust to specification. When installing the spark plug, always clean the gasket surface and use a new gasket. Wipe off any grime from the threads and tighten to the specified torque.

* Spark plug gap: 0.6-0.7 mm(0.024 - 0.03 in)

* Tightening Torque (Spark plug): 25 Nm (2.5 m*kg, 18ft*1b)

NOTE

A PLUG WITH VERY WHITE CENTRE ELECTRODE PORCELAIN COLOUR COULD INDICATE AN INTAKE AIR LEAK OR CARBURET ION PROBLEM.



PERIODIC MAINTENANCE

3-06. AIR CLEANER CLEANING (FIG. 3-09, 3 10, 3 11, 3 1.2)

NOTE

THERE IS A HOLE AT THE BOTTOM OF THE AIR CLEANER CASE. ANY DUST OR WATER COLLECTS IN THIS HOLE, BE SURE TO EMPTY THE HOLE AND CLEAN THE AIR FILTER ELEMENT; AND AIR CLEANER CASE.

01. Remove the seat. Fig. 3-09
02. Remove the air filter cover. Fig. 3-10
03. Remove the air filter element, fig. 3-11
04. Wash the element gently but thoroughly in solvent. Fig. 3-12

WARNING

POTENTIAL HAZARD: USING LOW FLASH POINT, SOLVENTS OR GASOLINE TO CLEAN THE AIR CLEANER ELEMENT.

AWARENESS

Low flash point solvents or gasoline can catch fire or explode.

SOLUTION

Use parts cleaning solvent to clean the air filter element.

05. Squeeze the excess solvent out of the filter and let it dry. Do not twist the filter element when squeezing it.
06. Inspect the element. If damaged, replace it.
07. Apply some motor oil to the element which element should be wet but not dripping.
08. Reinstall the element to the element, guide.
09. Reinstall the element, assembly and parts removed for access.

NOTE

1. CLEAN THE AIR FILTER ELEMENT EVERY 20-40 HOURS RIDING, IT SHOULD BE CLEANED AND LUBRICATED MORE OFTEN IF THE ATV IS USING IN EXTREMELY DUSTY AREAS.

2. WHEN CLEANING FILTER ELEMENT, CHECK (1) THE AIR INLET TO THE FILTER CASE FOR ANY OBSTACLE (2) THE AIR CLEANER RUBBER JOINT, TO THE CARBURETTOR, AND (3) ALL FITTINGS ON AIRTIGHT SEAL.

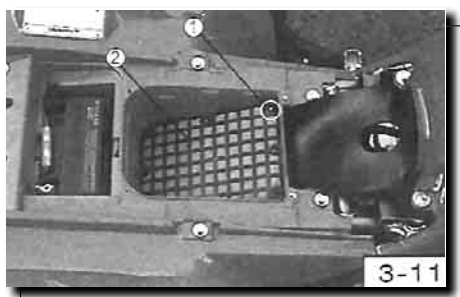
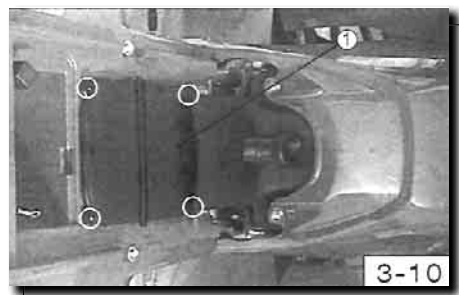
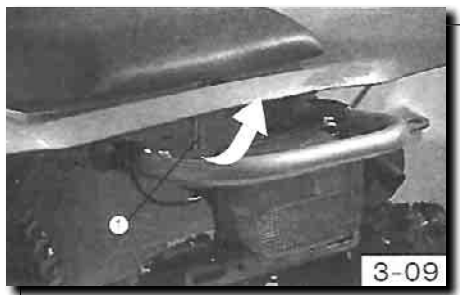
3. TIGHTEN ALL FITTINGS SECURELY TO AVOID THE POSSIBILITY OF UNFILTERED AIR ENTERING THE ENGINE.

CAUTION

NEVER START, THE ATV WITHOUT THE AIR FILTER ELEMENT.



PERIODIC MAINTENANCE



PERIODIC MAINTENANCE

3-07. IDLE SPEED ADJUSTMENT (FIG. 3-13)

01. Warm up the engine.
02. Turn pilot air screw clockwise until it is lightly seated.
03. Loosen pilot air screw by turning it counterclockwise 1-1/2.
04. Stop the engine and check the inductive tachometer.
05. Start the engine and adjust the throttle stop screw until around 1,500 +/- 100 rpm.
06. Turn the pilot screw in or out (clockwise or counter clockwise) to get the highest engine speed.
07. Re-adjust the idle speed with the throttle stop screw.

3-08. THROTTLE LEVER ADJUSTMENT (FIG. 3-14)

Be sure to adjust the engine idling speed before adjusting the throttle lever free play.

01. Loosen the locknut.
02. Turn the adjusting bolt until the throttle lever free play is 4-6 mm (0.16 - 0.24 in); (a).
03. Tighter the lockout.

3-09. SPEED LIMITED ADJUSTMENT (FIG. 3-15)

The speed limiter keeps the carburettor throttle from becoming full open even when the throttle lever is turned to a maximum. Screwing in the adjuster stops the engine speed from increasing.

01. Loosen the lockout.
02. Turn the adjuster clockwise or counter clockwise until proper length is attained. Finally, Tighten the locknut

* speed limited length: 12mm(0.47 in); (a)

3-10. FRONT DRUM BRAKE INSPECTION (FIG. 3-16)

A wear indicator is provided on the front brake that shows brake shoe wear without disassembling the brake.

Exercise the front brake and check the position of the indicator. If the indicator reaches the wear limit line, replace a new set.

3-11. REAR DISC BRAKE INSPECTION - BRAKE FLUID (FIG. 3-27)

The ATV has a single disc brake on rear axle. Check the operation of rear brake pedal and brake function before each riding. Be sure to check periodically the brake shoes during service.

3-11-1. Check the brake fluid level: (Fig. 3-18)

Whenever the fluid level nears the lower level mark, brake fluid has to be added to reservoir. Use only DOT # 3 or 4 brake fluid.

PERIODIC MAINTENANCE

<continue the 3-11-1. Check the brake fluid level>

CAUTION

1. NEVER ALLOW FOREIGN MATERIALS(DIRT, WATER, ...) ENTER THE BRAKE FLUID RESERVOIR.
2. BRAKE FLUID CAN DAMAGE ANY PAINTING AND PLASTIC.

WARNING

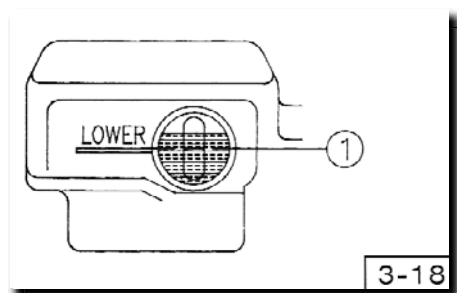
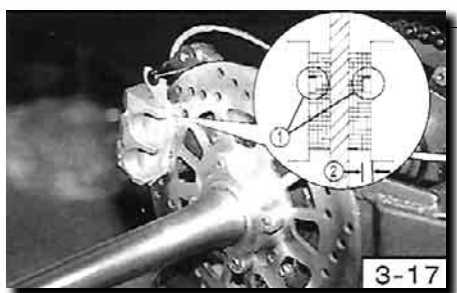
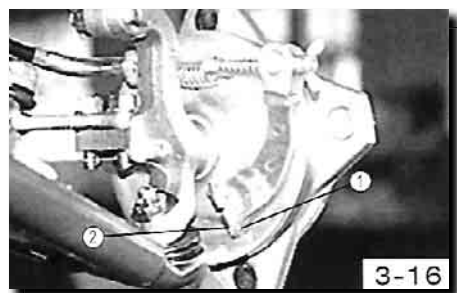
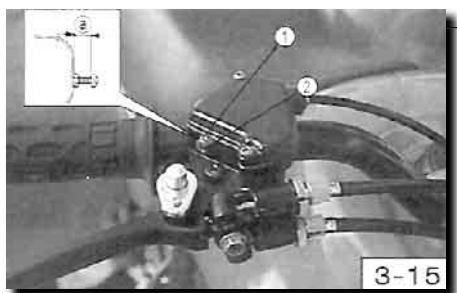
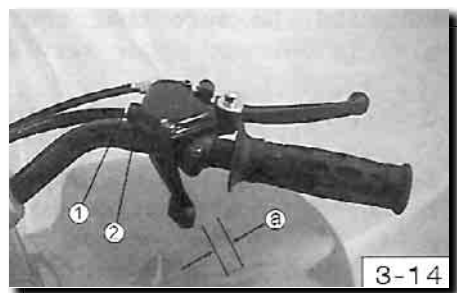
BRAKE FLUID CONTACTING THE SKIN AND EYES.

AWARENESS

May cause irritation.

SOLUTION

Avoid contacting brake fluid with the skin or eyes.



PERIODIC MAINTENANCE

3-12. FRONT BRAKE LEVER FREE PLAY ADJUSTMENT

The front brake lever free play should be adjusted to 3-5 mm (0.12-0.20 in) at the brake lever pivot. If the free play is incorrect, adjust as follows: (Fig. 3-19, 3-20, 3-21)

01. Loosen the lockout and fully turn in the adjusting bolt at the front brake lever.
02. Make sure the cable joint in the equalizer is straight. If not, turn the adjusting nuts at the front wheel hubs until the cable joint becomes straight.
03. Turn adjusting bolt at the brake lever until specified free play is obtained. Specified free play: 3-5 mm (0.12- 0-20 in) (a).
04. Tighten the lockout.

WARNING

IMPROPERLY SERVICED OR ADJUSTED BRAKES.

AWARENESS

May lose braking ability and could lead to an accident.

SOLUTION

Be sure that the brakes operate smoothly and the free play is correct after serviced. Be sure brakes do not restraint.

3-13. PARKING BRAKE ADJUSTMENT (FIG. 3-22)

3-13-1. Parking brake adjustment may be required if the parking brake does not function properly.

01. Loosen the lockout of the parking brake cable adjuster.
02. Turn the adjuster until there is little or no free play.
03. Tighten the lockout.

3-13-2. Brake lever, pedal, and cable lubrication

Lubricating the pivoting parts of each lever and pedal. Recommended lubricant: cable lube or SAE 10W30 motor oil.

WARNING

POTENTIAL HAZARD: RUNNING IMPROPERLY ADJUSTED BRAKES.

AWARENESS

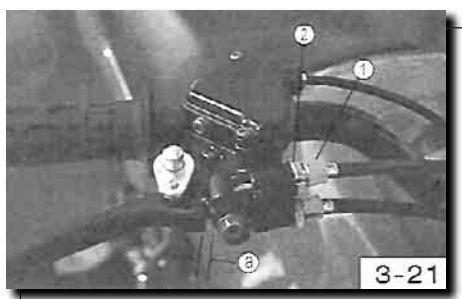
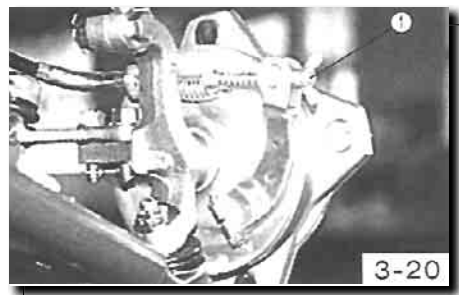
The brakes could malfunction, causing reduced braking performance. This could increase the chance of a collision or accident.

SOLUTION

After adjusting the parking brake, lift the rear part of ATV off the ground and spin the rear wheels. Check to make sure there is no brake drag. If brake drag is noticed, perform the adjustment again.



PERIODIC MAINTENANCE



PERIODIC MAINTENANCE

3-14. CLUTCH ADJUSTMENT AND LUBRICATION (FIG. 3-22, 3-24)

3-14-1. The clutch cable free play should be 5-8 mm (0.20 - 0.31in); (a) . If the free play is incorrect, adjust as follows.

01. Loosen the lockout.
02. Turn the adjuster clockwise or counter-clockwise until proper free play is attained.
 - * clockwise = free play is increased
 - * counter-clockwise = free play is decreased
03. Tighten the lockout.

3-14-2. Clutch lever lubrication

Lubrication the pivoting parts of clutch lever.

* Recommended lubricant: cable lube or SAE 10W30 motor oil

3-15. DRIVE-CHAIN SLACK CHECK & ADJUSTMENT (FIG. 2-25, 3-26, 3-27)

3-15-1. Inspect the drive chain while all tires are touching the ground. Check the slack at the position shown in the Fig. 3-25. The normal vertical deflection is approximately 30-40 mm (1.2-1.6in). If the deflection exceeds 40 mm(1.6 in) (a), adjust the chain slack.

3-15-2. Drive chain slack adjustment

01. Loosen the rear wheel hub bolts (1) (2) Fig. 3-26.
02. Loosen the adjuster lockouts on each side. To lighten, the chain, turn the chain adjuster clockwise. To loosen chain, turn adjuster counterclockwise and push the wheel forward.
03. Turn each adjuster exactly the same amount to maintain correct axle alignment. There are marks on each side of the swing-arm and on each chain adjuster. Use them to check for proper alignment.
04. After adjusting alignment, be sure to tighten the lockouts and the wheel hub bolts.

NOTE

UPPER WHEEL HUB BOLT: 50 NM (5.0 KG-M, 36 FT*LB)

LOWER WHEEL HUB BOLT: 50 NM (5.0 KG-M, 36 FT*LB)

3-15-3. Drive chain cleaning and lubrication

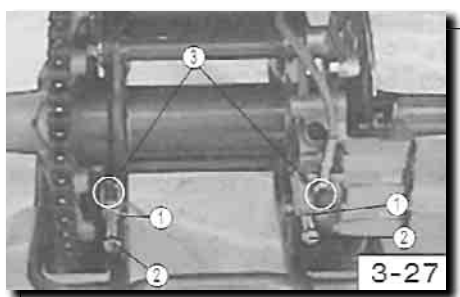
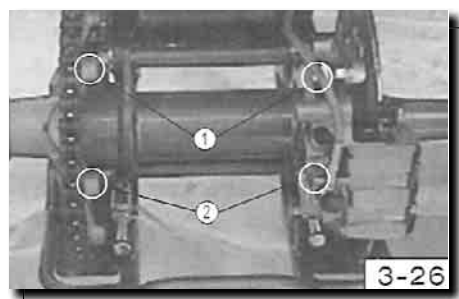
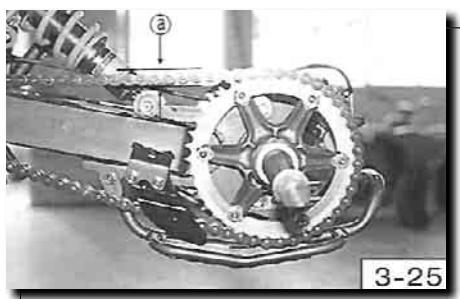
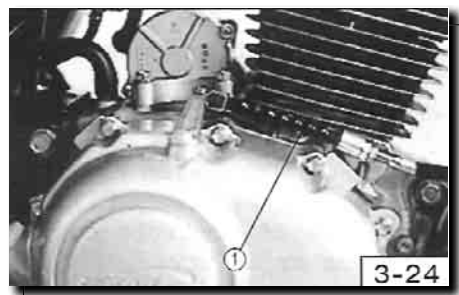
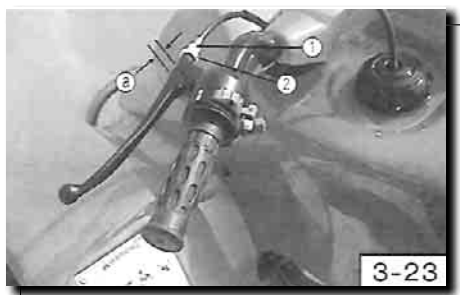
Use only Kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with SAE 30-50 motor oil. Do not use any other lubricants on the drive chain.

Recommended lubricant:

* SAE 30-50 motor oil



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3-16. CABLE INSPECTION AND LUBRICATION (FIG. 3-28)

WARNING

POTENTIAL HAZARD: DAMAGED CONTROL CABLES.

AWARENESS

Corrosion can result when the outer covering of control cables becomes damaged. Cables can also become frayed or kinked.

Operation of controls could be restricted, which could cause an accident or injury.

SOLUTION

Inspect cables frequently. Replace damaged cables.

Lubricate the inner cables and the cable ends. If the cables do not operate smoothly, be sure to replace new.

*** Recommended lubricant:**

chain & cable lube or SAE 10W30 motor oil

3-17. UPPER ARM AND LOWER ARM PIVOT LUBRICATION (FIG. 3-29A, 3-29B)

Lubricate the upper arm pivot and the lower arm pivot.

*** Recommended lubricant:**

Lithium soap base grease

3-18. STEERING SHAFT INSPECTION & LUBRICATION (FIG. 3-30)

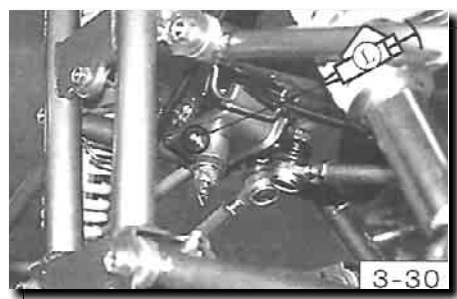
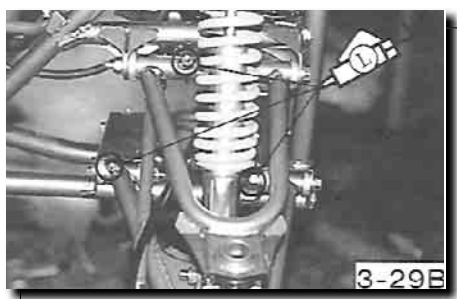
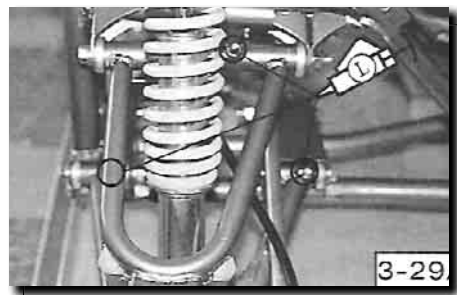
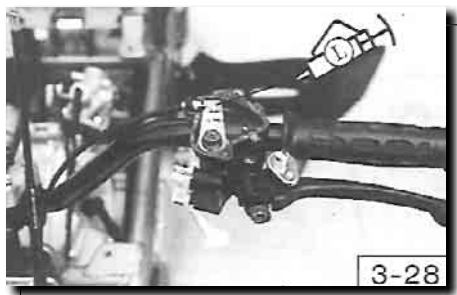
01. place the vehicle on a level place
02. check the steering column bushings and bearings.
03. move the handlebar up and down, and/or back and forth.
04. if excessive play, replace the steering column bushings and or bearing,
05. check the tie-rod ends
06. turn the handlebar to the L and/or R until it strips completely, than slightly move the handlebar to L to R.
07. if tie-rod end has any vertical play, replace tie-rod ends
08. raise the front end of vehicle
09. check ball joints and/or wheel bearings
10. move the wheel laterally back and forth.
11. if excessive play, replace front arm and/or wheels bearings
12. use a grease gun to lubricate the pivot points.

*** Recommended lubricant:**

Lithium soap base grease



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3-19. TON-IN ADJUSTMENT (FIG. 3-32, 3-32/ 3-33/ 3-34/ 3-35)

01. place the ATV on a level place
02. check the Toe-in, if out of specification, be adjusted.

NOTE

1. MARK BOTH FRONT TIRE TREAD CENTRES.
2. RAISE THE FRONT END OF THE ATV
3. FIX HANDLEBAR STRAIGHT AHEAD
4. MEASURES THE WIDTH (A) BETWEEN THE MARKS
5. ROTATE THE FRONT TIRE 180 DEGREE THE MARKS
6. MEASURE THE WIDTH (B) BETWEEN THE MARKS “.
7. CALCULATE THE TOE-IN, “TOE IN = B-A”,
* TOE-IN: 0-10MM(0-0.39 IN)

NOTE

THE TOE-IN ADJUSTMENT STEPS:

1. PLACE THE CONFIRMATION MERCIERS (1) ON THE BOTH TIE-RODS END-
2. LOOSEN THE ROD END LOCKOUTS (2) OF BOTH TIE-RODS.
3. THE SAME NUMBER OF TURNS SHOULD BE GIVEN TO BOTH TIE-RODS (3) L AND R UNTIL SPECIFIED TOE-IN IS OBTAINED.
4. TIGHTEN THE ROD END LOCKOUTS (2) OF BOTH TIRE-RODS.
* TORQUE LOCKNUT: 3.0 KG-M

3-20. FRONT SHOCK ABSORBER ADJUSTMENT (FIG. 3-35)

01. adjust: the spring prelate by turning adjuster increase or decrease
02. the police softer (2) = position (A)
 standard = position (B)
 stiffer (3) = position (C,D,E)

WARNING

ALWAYS ADJUST: BOTH FRONT SHOCK ABSORBER SPRING PROLATE TO THE SAME SETTING. UNEVEN ADJUSTMENT CAN CAUSE POOR HANDLING AND LOSS OF STABILITY.

3-21. REAR SHOCK ABSORBER ADJUSTMENT (FIG. 3-37, 3-38)

Check the rear shock absorbed (1) function for any damage -- replace

NOTE

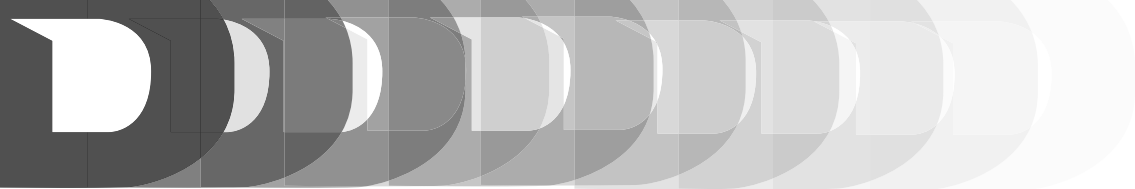
LENGTH OF ABSORBER: FREE 380+/-3MM STROKE 70MM (A) FIG. 3-38

OPTION

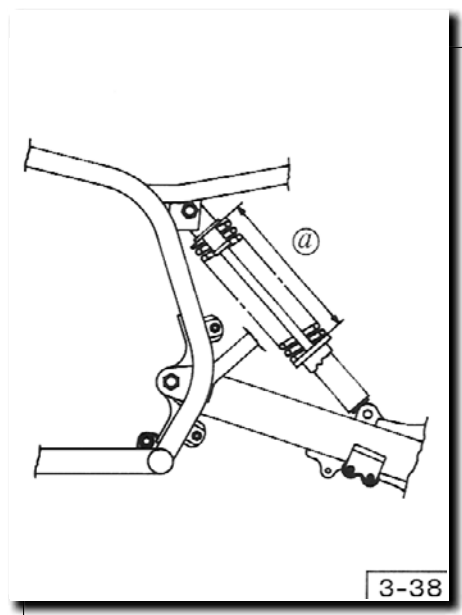
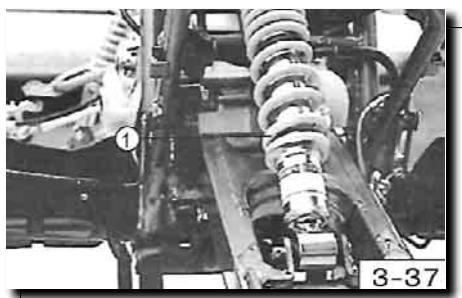
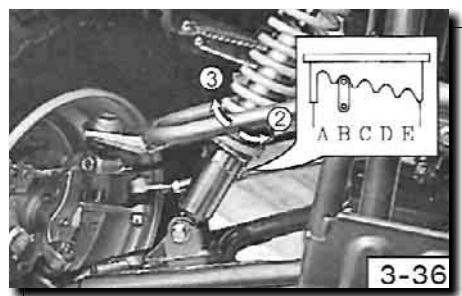
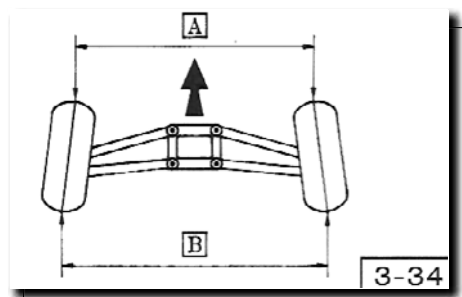
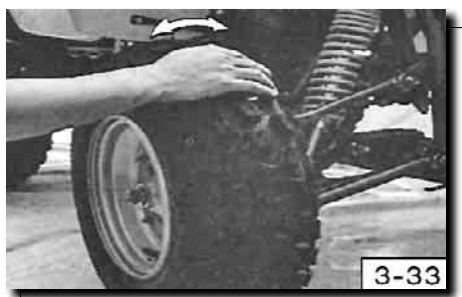
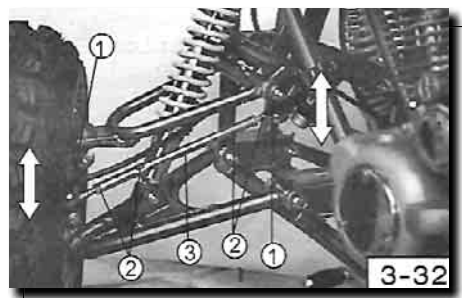
Adjustable rear-absorber with spring prolata -- OPTION

01. looser, the locknut
02. adjust the spring prolata, the length of spring (install) changes 1.5mm (0.06 in) per turn of the adjuster.
03. turn adjuster clockwise increase the spring prolata turn adjuster counter-clockwise: decrease the spring prolata

* Torque locknut:
5.5 kg-m



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3-22. TIRE INSPECTION (FIG, 3-39. 3-40)

3-22-1. Tire Deals

Be sure to keep the tire pressure. Operating this ATV with improper tires, or with improper or uneven tire pressure.

CAUTION

USE OF IMPROPER TIRES ON THIS ATV OR OPERATION OF THIS ATV WITH IMPROPER OR UNEVEN TIRE PRESSURE MAY CAUSE LOSS OF CONTROL AND INCREASE RISK OF ACCIDENT.

01. The tires listed below have been approved by maker for this model. Other tire combinations are not recommended.

	MANUFACTURE	SIZE	TYPE
FRONT	DURO	AT21*7-10	DI2002
	CHENG SHIN	AT21*7-10	C873N
REAR	DURO	AT21*10-8	DI2001
	CHENG SHIN	AT21*10-8	C874N

02. The tires should be set to the recommended pressure:

	SUGGESTION	MINIMUM	MAXIMUM
FRONTAL	30 kPa	27 kPa	33 kPa
	0,30 kgf/cm2, 4,4 psi	0,27 kgf/cm2, 3,9 psi	0,33 kgf/cm2, 4,7 psi
REAR	25 kPa	22 kPa	28 kPa
	0,25 kgf/cm2, 3,6 psi	0,22 kgf/cm2, 3,2 psi	0,28 kgf/cm2, 4,0 psi

NOTE

CHECK AND ADJUST TIRE PRESSURES WHEN THE TIRES ARE COLD. TIRE PRESSURES MUST BE EQUAL ON BOTH SIDES. TIRE PRESSURE ABOVE THE MINIMUM SPECIFIED COULD CAUSE THE TIRE TO DISLODGE FROM THE RIM UNDER SEVERE RIDING CONDITIONS. HIGHER PRESSURES MAY CAUSE THE TIRE TO BURST. INFLATE THE TIRES SLOWLY AND CAREFULLY, FAST INFLATION COULD CAUSE BURST.

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03. Be sure no more than follows pressures when seating tire Beads.

Front:

250 kPa (2,5 kgf/cm², 36 psi)

Rear:

250 kPa (2,5 kgf/cm², 36 psi)

3-22-2. The low-pressure tire gauge (Fig. 3-35)

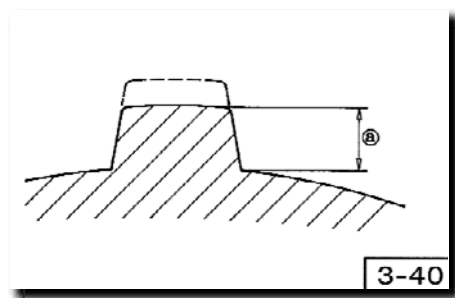
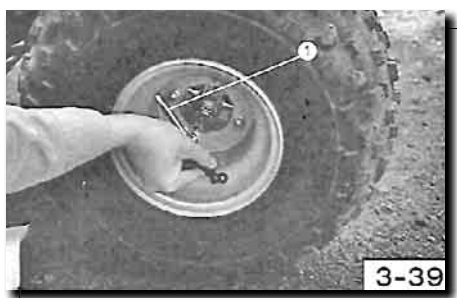
Keep the low-pressure tire gauge with the ATV for ready use all the time. Take out dirt or dust in the gauge. Always make two measurements of tire pressure and take the 2nd. reading.

01. Set pressure with tires cold.

02. Set tire pressures to match the suggested tire pressure.

3-23. TIRE WEAR LIMIT (FIG. 3-40)

When the tire groove decreases to 3 mm (0.12 in.) (a) due to wear, be sure to replace the tire.



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3-24. WHEEL REMOVAL AND RE-INSTALLATION (FIG. 3-42, 3 -42)

3-24-1. Removal

01. Elevate the wheel by placing a suitable stand under frame.
02. Remove the nuts from the wheel.
03. Remove the wheel assembly.

3-24-2. Installation

When installing the wheels, reverse the removal procedure. Tighten. the wheel nuts to the specified torque.

Wheel nut torque:

- | | |
|---------------|------------------------------|
| Front: | 45 Nm (4,5 Kg.-m, 32 ft*lb); |
| Rear: | 45 Nm (4,5 Kg.-m, 32 ft*lb) |

3-25. REPLACING THE HEADLIGHT (FIG. 3-43, 3-44, 3-45, 3-46)

If the headlight bulb burns out, be sure to replace the new bulb.

01. Remove the front cover (1) Fig. 3-44.
02. Take out bulb (2) from bulb holder and remove defective bulb.
03. Put a new bulb and secure it in place with the bulb holder.
04. Reinstall the front cover.

WARNING

POTENTIAL HAZARD: THE HEADLIGHT BULB IS HOT WHEN IT IS ON AND IMMEDIATELY AFTER IT IS TURNED OFF.

AWARENESS

People can be burned, or a fire could start if the bulb touches something flammable

SOLUTION

Wait for the bulb to cool before touching or removing it.

3-26. REPLACING THE REAR LIGHT (FIG. 3-47, 3-48)

If the rear-light bulb burns out, be sure to replace the new bulb.

01. Remove the rear light cover (1) Fig. 3-47
02. Take out bulb (2) from bulb holder and remove defective bulb.
03. Put a new bulb and secure it in place with the bulb holder.
04. Reinstall the light: cover.

3-27. BATTERY - CHARGING SYSTEM (FIG. 3-49)

Be sure to keep the battery capacity. If not enough capacity please re-charge or replace a new battery.

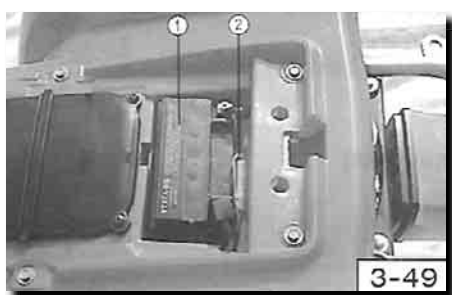
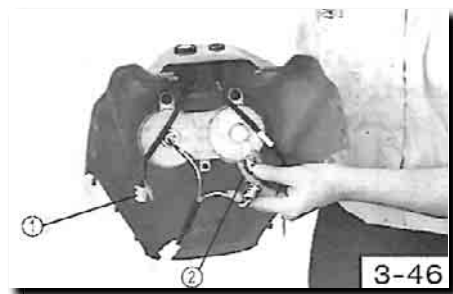
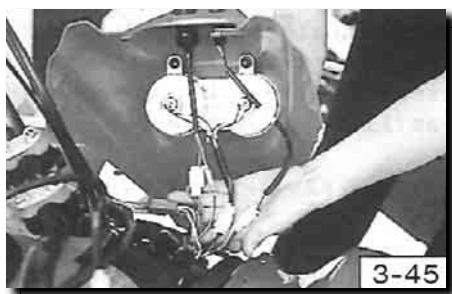
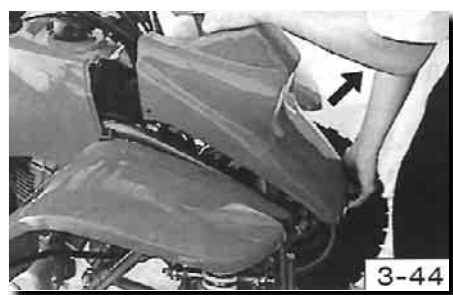
CAUTION

THE BATTERY IS A MF (MAINTENANCE FREE) TYPE WHICH IS UNNECESSARY TO BE REFILLED DISTILLED WATER. DO NOT QUICK CHARGE THE BATTERY. ONLY USE A MF BATTERY CHARGER AND BATTERY TEMPERATURE SHOULD NOT EXCEED 45C. REMOVE THE BATTERY FROM THE ATV WHEN RE-CHARGING.



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3-28. BATTERY REMOVAL (FIG. 3-49)

When recharging or store, remove battery from ATV. The procedure;

01. be sure the ignition (main) switch is "OFF"
02. take out the seat
03. disconnect the negative (-) terminal lead from battery
04. disconnect the positive (+) terminal lead from battery
05. take out battery
06. store or re-charge battery

CAUTION

ONLY STORE THE BATTERY ON COOL AND DRY PLACE. DO NOT LEAVE OR STORE THE BATTERY IN HOT (MORE THAN 30C) OR COLD (LESS THAN 0C) AREA.

3-29- FUSE (15A) -- FIG. 3-49

To replace a fuse (15A), be sure to follow:

01. be sure the ignition (main) switch is "OFF"
02. open fuse holder and take out old fuse
03. install new fuse and close the fuse holder

CAUTION

BE SURE TO TURN THE IGNITION SWITCH OFF BEFORE CHECKING OR REPLACING THE FUSE TO PREVENT ACCIDENTAL SHORT-CIRCUITING ON ELECTRICAL SYSTEM. IF A FUSE FAILS FREQUENTLY, WHICH MEANS A SHORT- CIRCUIT OR AN OVERLOAD IN THE ELECTRICAL SYSTEM -- BE SURE TO CHECK IT ON. ONLY USE THE FUSE SPECIFIED AS (15A).

3-30. FUEL TANK (FIG. 3-50, 3-51, 3 -52, 3-53, 3-54, 3-54A)

3-30-1. Fuel tank and fuel valve removal

01. lock the fuel cap and fuel lock on "OFF" Fig. 3-50
02. loosen the screw Fig. 3-51
03. disconnect, the fuel hose Fig. 3-52
04. remove the fuel tank Fig. 3-54
05. remove the fuel valve
06. disassembly the fuel valve Fig. 3-54A

3-30-2. Fuel tank and fuel valve inspection

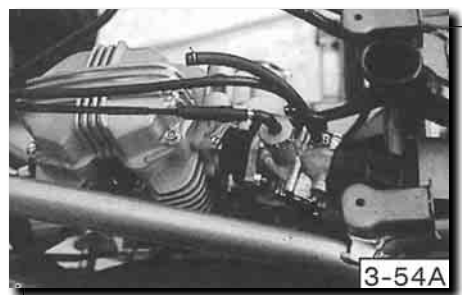
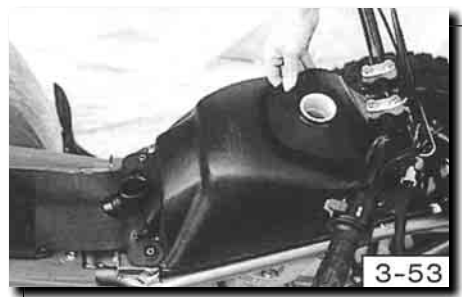
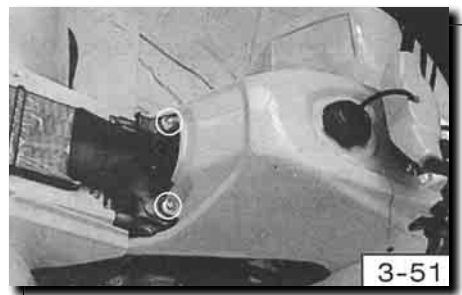
- | | |
|---|---------------------|
| 01. check valve strainer for dirt and clog | -- clean or replace |
| 02. check the o-rings for any wear/damage | -- replace |
| 03. check the rubber gasket for any wear/damage | -- replace |
| 04. check the fuel tank for any wear/damage | -- replace |
| 05. check the fuel hose for any wear/damage | -- replace |

3-30 3. Fuel tanks and fuel valve installation

01. reverse the 3-30-1 procedure
02. check, for any fuel leakage
03. check the wire and hose connection



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3 31. ENGINE ADJUSTMENT (FIG. 3-55, 3-56, 3-57, 3-58, 3-59, 3-60)

3-31-1. Valve clearance

01- remove the cylinder head cover Fig. 3-55

02. rotate the generator flywheel on camshaft on the top dead centre (TDC) and align the "T" mark. Fig. 3-56, 3-57

03. Valve clearance (IN: 0.05mm EX: 0.05mm) Fig. 3-58

04. adjust by loosening the lock nut and turning adjusting bolt

05. after adjustment, turn the crankshaft several rotations to make sure the valve clearance is correct.

CAUTION

1. CHECK THE VALVE CLEARANCE WHILE THE ENGINE IS BELOW 35°C.
2. CHECK THE VALVE CLEARANCE AGAIN AFTER THE LOCK NUT IS LIGHTENED.

3-31-2. Ignition timing (15 degree/1,500 rpm)

01. remove the ignition timing hole cap on L crankcase Fig. 3-57

02. use the ignition timing light, to check ignition timing Fig. 3-59

03. the correct ignition timing at idle speed mark on "F" in flywheel

CAUTION

THE CDI IGNITION TIMING IS NOT ADJUSTABLE. IF TIMING IS INCORRECT, CHECK THE IGNITION SYSTEM.

3-31-3. Cylinder compression (Fig. 3 – 60)

01. warm up engine few min. and then stop engine

02. remove the spark plug and insert the compression gauge.

03. open. the throttle fully and re-start engine

04. measure the compression: 1.3kg/cm² Fig. 3-60

05. if compression is low, be checked:

- 1). leaky valve
- 2). small valve clearance
- 3). damaged cylinder head gasket
- 4). worn piston rings
- 5). worn cylinder and piston

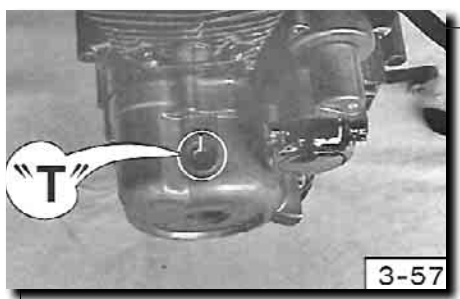
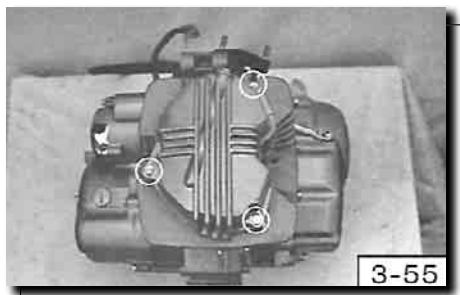
06. if compression is high, be checked:

- 1). carbon deposits have accumulated on combustion chamber
- 2). carbon deposits have accumulated on the piston head

3-31-4. idle speed adjustment. -- refer to part 3-07



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ENGINE DETAILS

PART 4. ENGINE DETAILS

4-01. FUEL SYSTEM AND CARBURETION

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

01. Throttle disassembly
02. Carburettor removal
03. Float/float inspection
04. Jets/air screw/throttle screw removal
05. Fuel outlet ball removal and inspection
06. Slow/Main jet installation
07. Choke
08. Float level inspection.
09. Carburettor installation
10. Throttle valve installation
11. Fuel tank and fuel valve removal
12. Fuel tank and fuel valve inspection
13. Fuel tanks and fuel valve installation
14. Air cleaner cleaning

4-02. LUBRICATION SYSTEM

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. Engine oil
2. Oil pump/oil filter rotor removal
3. Oil pump disassembly and inspection
4. Oil pump reassembly and installation

4-03. ENGINE REMOVAL/INSTALLATION

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. Engine removal
2. Engine installation

4-04. CYLINDER HEAD/VALVE

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. Cylinder head cover removal
2. Rock arm set removal
3. Cylinder head removal
4. Cylinder disassembly and check
5. Cylinder head assembly and inspection

ENGINE DETAILS

4-05. CYLINDER/PISTON

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. Cylinder removal
2. Cam follower removal
3. Piston removal and inspection
4. Cylinder head inspection
5. Piston installation
6. Cylinder installation

4-06. STARTER/GENERATOR/ L CRANKCASE/START CLUTCH/CAMSHAFT

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. Starter motor removal
2. L crankcase cover removal
3. Generator removal
4. Starter clutch removal and inspection
5. Camshaft removal
6. Camshaft installation
7. Starter gear installation
8. L crankcase cover installation
9. Starter motor installation

4-07. CLUTCH / GEAR SHIFT MECHANISM

NOTE SERVICE INFORMATION

NOTE PROBLEMS SHOOTING <Q-A>

1. R crankcase cover removal
2. Clutch removal
3. Clutch inspection
4. Gear shift mechanism removal
5. Gear shift inspection and installation
6. R crankcase cover installation

4-08. CRANKCASE/CRANKSHAFT/TRANSMISSION/STARTER SPINDLE

NOTE SERVICE INFORMATION

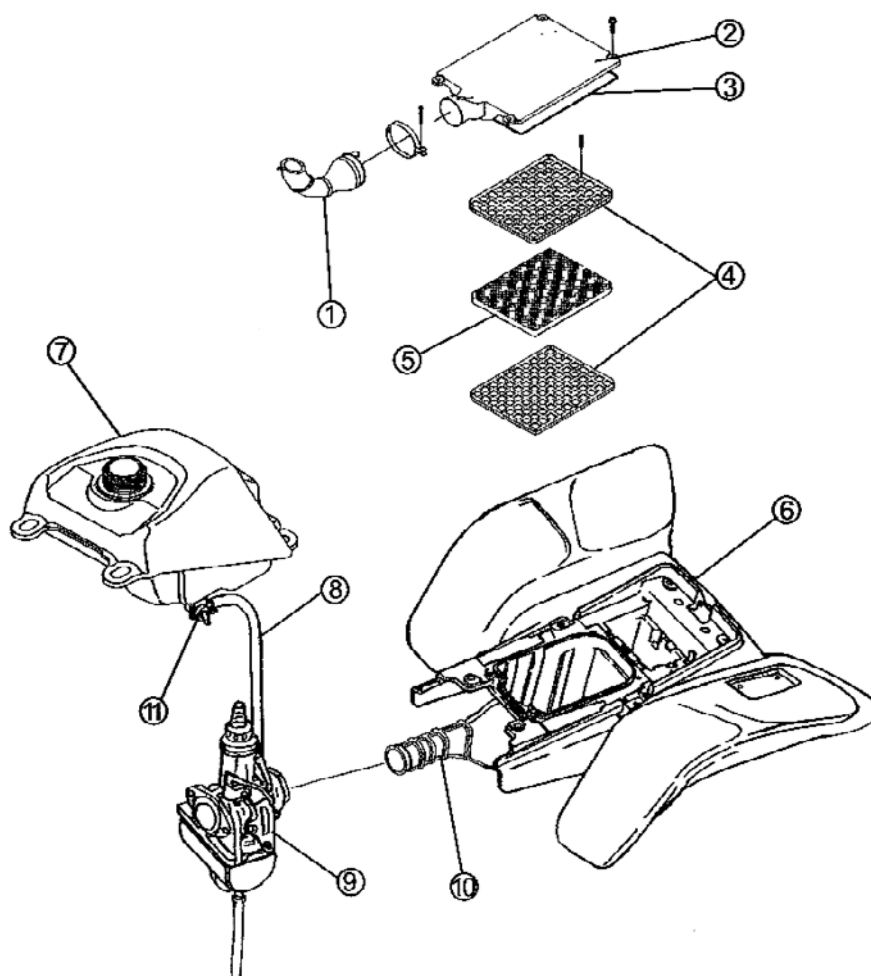
NOTE PROBLEMS SHOOTING <Q-A>

1. Crankcase removal
2. Transmission system removal and inspection
3. Transmission gears / crankshaft removal
4. Gear / shaft collar inspection
5. Starter spindle removal and inspection
6. Bearing inspection and replacement
7. Crankshaft inspection
8. Crankshaft installation
9. Crankcase installation

ENGINE DETAILS

4-1.FUEL SYSTEM AND CARBURETION BRIEFING

- | | | | |
|------|---------------------------|------|-----------------------|
| (01) | Dutch | (02) | Cleaner cover |
| (03) | Seal of air cleaner cover | (04) | Plate of element sec. |
| (05) | Element of air cleaner | (06) | Side cover |
| (07) | Fuel tank | (08) | Fuel hose |
| (09) | Carburettor | (10) | Joint of air-cleaner |



ENGINE DETAILS

4-1. FUEL SYSTEM AND CARBURETION

NOTE SERVICE INFORMATION

Carburettor Float level:	125 cc on 12,5 mm; 150 cc on 13 mm
Main jet:	125 cc on # 90; 150 cc on # 102
Slew jet:	125 cc on # 35; 150 cc on # 40
Idle speed:	125 cc on # 1400 +/- 100 rpm 150 cc on # 1500 +/- 50 rpm
Throttle grip free play:	2-6 mm
Air screw opening:	125 cc on 1 3/4; 150 cc on 1 3/4 +/- 1/2

WARNING 1

GASOLINE IS VERY DANGEROUS. BE SURE TO KEEP SPARKS AND FLAMES AWAY FROM WORKING AREA.

AWARENESS 1

Gasoline is poisonous. People could be injured.

SOLUTION 1

1. If people should swamp some gasoline or inhale a lot of gasoline vapor, or gasoline in eyes, go to doctor immediately.
2. If gasoline spills on skin, wash with soap and water. If gasoline spills on clothing, be changed clothes.

WARNING 2

POTENTIAL HAZARD: IMPROPER CARE WHEN REFUELLING.

AWARENESS 2

Fuel can spill, which can cause a fire and severe injury. Fuel expands when it heats up. If fuel tank is overfilled, fuel could spill out due to heat from the engine or the sun.

SOLUTION 2

1. Do not overfill the fuel tank.
2. Do not spill fuel, especially on the engine or exhaust pipe.
3. Wipe up any spilled fuel. Be sure to close fuel tank cap.
4. Do not refuel right after the engine has been running.

NOTE

PROBLEMS SHOOTING

<Q-A> Lean mixture?

- clogged carburettor fuel jets
- float level too low
- intake air leak
- faulty charcoal canister
- restricted fuel line

ENGINE DETAILS

<Q-A> Engine Cranks but do not start?

- no fuel in the tank
- no fuel in the carburettor
- cylinder flooded with fuel
- no spark at plug
- clogged air cleaner
- intake air leak
- improper throttle operation

<Q-A> Engine idles roughly, stalls or runs poorly?

- excessively used choke
- ignition malfunction
- faulty carburettor
- poor quality fuel
- lean or rich mixture
- clogged air cleaner
- incorrect idle speed
- faulty charcoal canister

<Q-A> Engine lacks power?

- clogged air cleaner
- faulty carburettor
- faulty ignition system

<Q-A> Rich mixture?

- float level too low
- clogged air jets
- clogged air cleaner
- worn throttle needle

<Q-A> Misfiring during acceleration?

- faulty ignition system
- faulty carburettor
- faulty accelerating pump
- faulty charcoal canister

<Q-A> Backfiring?

- carburettor fuel level too low
- improperly adjusted carburettor
- faulty exhaust pipe

CAUTION

1. BEFORE DISASSEMBLING CARBURETTOR, LESSEN THE FLOAT CHAMBER DRAIN SCREW TO DRAIN RESIDUAL GASOLINE OUT

2. THE CARBURETTOR JETS(AIR, ..) MUST CLEANED WITH COMPRESSED AIR.

ENGINE DETAILS

4-1-1. Throttle disassembly (Fig. 4-01, 4-02, 4-03, 4-04)

01. remove the carburettor cap (1) Fig. 4-01
02. pull out the throttle valve (Option) disconnect the accelerating pump cable
03. disconnect the choke knob cable
04. disconnect the throttle cable and remove the spring Fig. 4-03
05. pry off needle retainer (1) and remove jet needle (2) Fig. 4-04
06. check the throttle valve (3) and jet needle for wear or damage

NOTE

<OPTION> (FIG. 4-12) THE CARBURETTOR WITH ACCELERATING PUMP

4-1-2. Carburettor removal (Fig. 4-05, 4-06)

01. be sure to turn the fuel clock off
02. loosen the drain screw to drain fuel from the float chamber
03. disconnect the fuel inlet tube
04. loosen the air cleaner connector band screw (1) Fig. 4-05.
05. remove the 2 carburettor lock nuts (2) and remove carburettor Fig. 4-05.
06. remove the chock cable Fig. 4-06.

4-1-3. Float/float valve inspection (Fig. 4-7)

01. remove the float pin, float and float valve Fig. 4-7
02. inspect the float valve seat for any wear or damage.
03. inspect the float for damage or fuel inside the float.

4-1-4. Jets/air screw/throttle screw removal (Fig. 4-8, 4-9)

01. remove the main/slow jet (1) and jet holder (2) Fig. 4-8.
02. remove the air screw (1) and throttle stop screw (2) Fig. 4-9.

CAUTION

1. BE CAREFUL NOT TO DAMAGE THE JETS AND JET HOLDER DURING THE REMOVAL. BEFORE REMOVAL, TURN THE THROTTLE STOP AND AIR SCREW CLOCKWISE UNTIL SEAT LIGHTLY AND RECORD NUMBER OF ROTATIONS.
2. THE DAMAGED SCREW SEAT. DRILL OCCUR, IF THE SCREW IS TIGHTENED AGAINST THE SEAT. USE SLOW COMPRESSED AIR THROUGH ALL PASSAGES FROM IN-OUT DIRECTION (NOT OUT-IN DIRECTION) BEFORE REASSEMBLY.

4-1-5. Fuel outlet ball removal and inspection

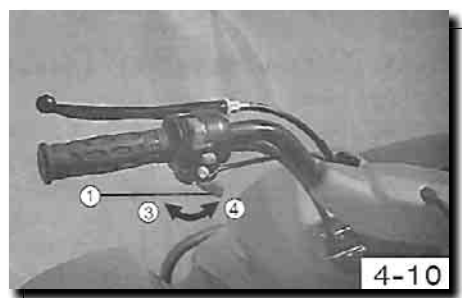
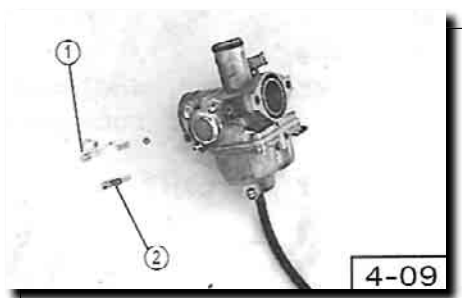
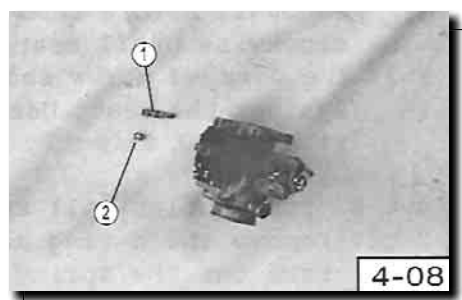
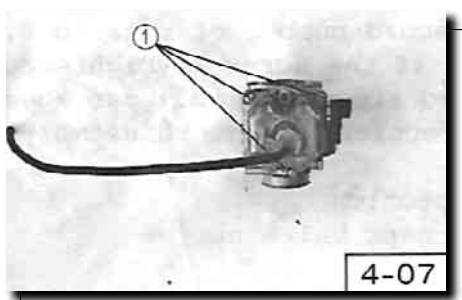
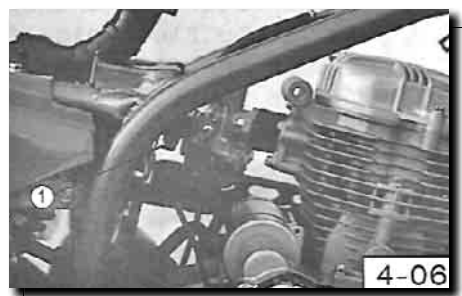
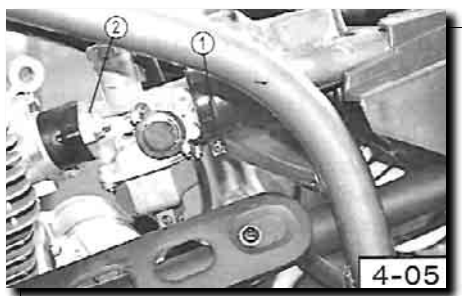
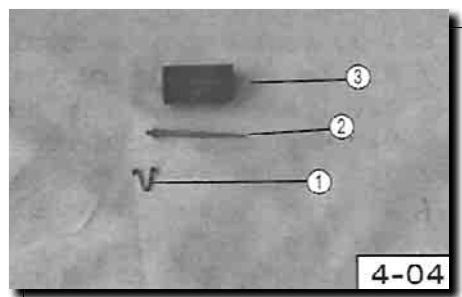
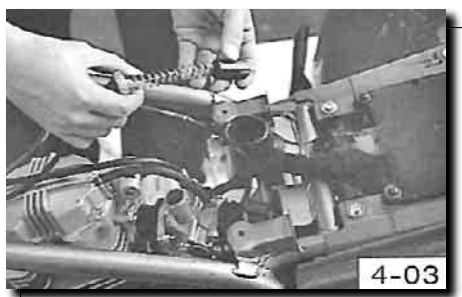
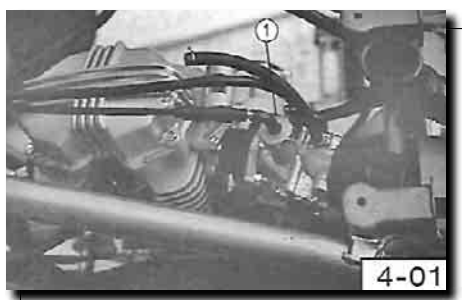
01. remove the o-ring and remove the check valve nut.
02. take out the spring and the steel balls.
- 03 . inspect the check valve steel balls for any rust and the spring for damage -- replace.

4-1-6. Slow/Main jet installation (Fig. 4-8, 4-9)

01. install the slow jet, needle jet, jet holder, and main jet
02. install the air screw referring the number of rotations records as the removal.
03. install the float valve, float, and float pin.



ENGINE DETAILS



ENGINE DETAILS

4-1-7. Choke(refer to Fig. 4-10, 4-11)

For different requirements, the choke position may locate on left handle-bard;, below the start button. Fig. 4-11. Starting a cold engine requires a richer air-fuel mixture (2) on direction (3) to open the choke and (4) to close the choke.

4-1-8. Float level inspection(Fig. 4-08)

01. turn the carburettor upside down for float valve touch the float valve seat. Then, tilt carburettor slowly to check float level with level gauge during float pin touch valve.

* service limit (float level)- 12.5mm(125) or 13mm (150).

02. very careful bend the float pin to perform adjustment.

03. re-check the proper float operation.

04. install the float chamber.

4-1-8. Carburettor installation (Fig. 4-05, 4-06)

01. use slow compressed air through all passages before install.

02. tighten the 2 locknuts and air cleaner connector band screw.

* torque: 0.8-1.2 kg-m

4-1-9. Throttle valve installation (Fig. 4-1, 4-2, 4-3, 4-4)

- The procedure reverses the removal steps:

01. install the jet needle into the throttle valve and secure with the needle retainer.

* Jet needle notch: 4th. Notch (from top to bottom)

02- assemble rubber cover, carburettor cap. throttle valve spring.

03. connect the throttle cable to the valve.

04. install the throttle valve into the carburettor. Align the groove in the throttle valve with the throttle stop screw.

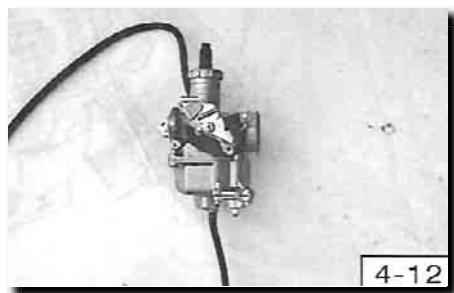
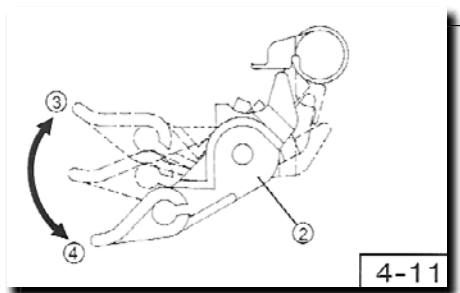
05. tighten the carburettor cap.

06. inspect the throttle grip free play and make adjustment.

* throttle grip free play: 2-6mm

4-1-10. Fuel tank: refer to part 3-30

4-1-11. Air cleaner cleaning: refer to part 3-06



ENGINE DETAILS

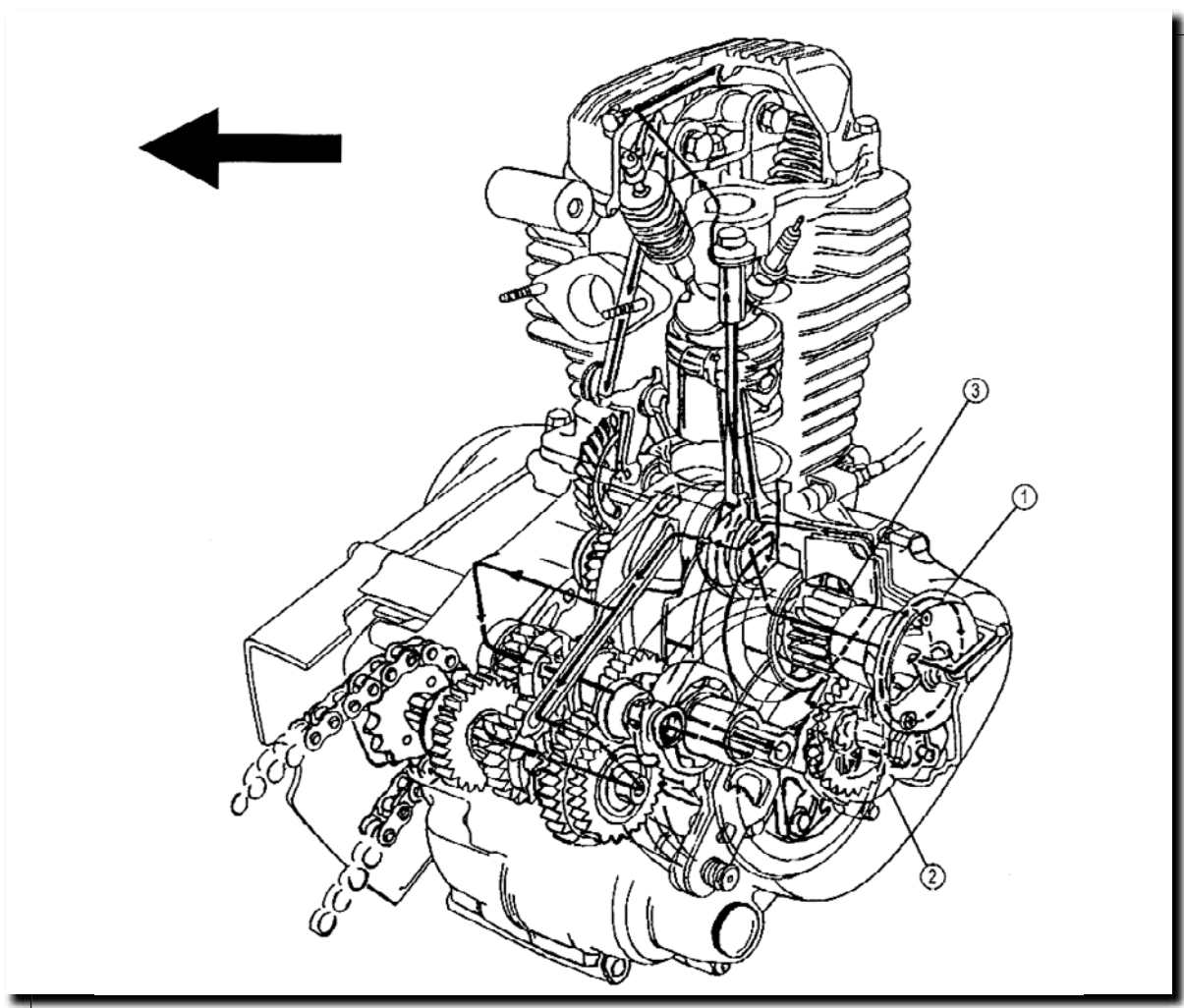
4-2. LUBRICATION SYSTEM BRIEFING

- (01). oil filter rotor
- (02). oil pump
- (03). primary gear (1ST)

CAUTION

BE SURE TO PERFORM THE INITIAL MAINTENANCE FOR CHANGING ENGINE OIL (A QUALIFIED SYNTHETIC 4-STROKE OIL IS STRONGLY RECOMMENDED), CLEANING ENGINE OIL FILTER, .. AFTER 1ST 20HRS (OR 100KM) OPERATION.

* THE DRAWING OF LUBRICATION SYSTEM FOLLOWS DIRECTION AS;



ENGINE DETAILS

4-2. LUBRICATION SYSTEM

NOTE

SERVICE INFORMATION

ITEMS	STANDARD (RAM.)	SERVICE LIMIT (MM.)
<OIL PUMP>		
01. Inner rotor - outer / rotor clearance		0,20 mm
02. Outer rotor - pump body / clearance		0,20 mm
03. Rotor end - pump body / clearance	0,015 - 0,1 mm	0,15 mm

CAUTION

1. BE VERY CAREFUL ON REMOVING AND INSTALLING THE OIL PUMP.
2. BE SURE THAT NO ANY DUST OR FOREIGN MATTERS ENTERS THE ENGINE.

NOTA

TROUBLE SHOOTING

<Q-A> Oil level too low?

- (1) abnormal consumption of oil.
- (2) oil leaks,
- (3) worn or poorly installed piston rings,
- (4) worn valve guide or seal.

<Q-A> Engine burns?

- (1) low or no lubrication pressure,
- (2) clogged oil passage,
- (3) not using specified engine oil

CAUTION

BE SURE TO PERFORM THE INITIAL MAINTENANCE FOR CHANGING ENGINE OIL (A QUALIFIED SYNTHETIC 4-STROKE OIL IS STRONGLY RECOMMENDED), CLEANING ENGINE OIL FILTER, .. AFTER 1ST 20HRS (OR 100KM) OPERATION.. 4-STROKE ENGINE OIL VISCOSITY: SAB 10W-40, A QUALIFIED SYNTHETIC OIL IS STRONGLY RECOMMENDED. 4 STROKE ENGINE OIL IS A MAJOR FACTOR AFFECTING THE ENGINE PERFORMANCE AND SERVICE LIFE.

PERIODIC INSPECTION, ADJUSTMENT, AND LUBRICATION WILL KEEP ATV IN THE SAFEST AND BEST OPERATION CONDITION. BE SURE TO USE ONLY GENUINE MAKER PARTS FOR REPLACEMENT.

ENGINE DETAILS

4-2-1. Engine oil (4-stroke engine oil only) -- refer to part 3-04

4-2-2- Oil Pump/Oil Filter Rotor Removal: (Fig. 4-13) (option) remove the kick lever --- if this engine has kick

01. disconnect the clutch cable.
02. remove the right crankcase cover bolts and crankcase cover.
03. check any oil leaks or damage from the cover gasket, oil seal, and o-ring, replace the new one if necessary.
04. remove the 3 screws on oil filter rotor cover Fig. 4-14.
05. remove the washer and oil filter rotor Fig. 4-15.
06. remove the 2 oil pump mounting bolts and oil pump body Fig. 4-16.
07. remove the 2 o-rings Fig. 4-17.
08. check any deformation or damage on o-ring, if so replace it.

CAUTION

BE SURE TO USE THE NEW GASKET WHEN RE-ASSEMBLY.

4-2-3. Oil-pump disassembly and inspection

01. remove the 2 screws Fig. 4-18.
02. measure the clearance of pump body to outer rotor Fig. 4-19.
*service limit: 0.20mm
03. measure the clearance of inner rotor to outer rotor Fig- 4-20.
* service limit: 0.02mm
04. Measure the clearance of rotor end to pump body Fig. 4-21.
*service limit: 0.15mm

4-2-4. Oil-pump reassembly and installation(Fig. 4-22)

The procedure reverses the removal steps:

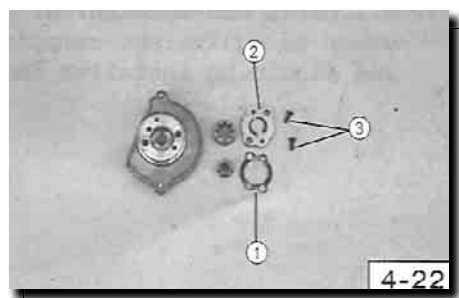
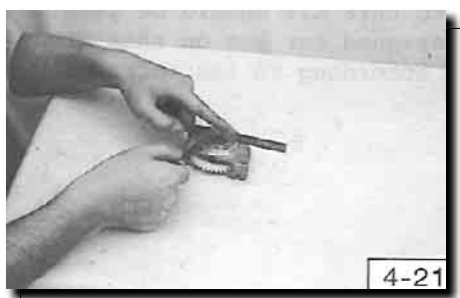
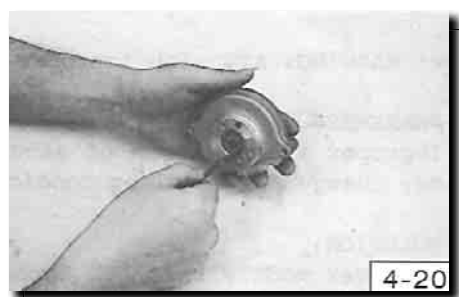
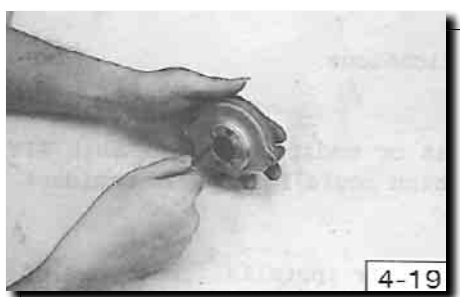
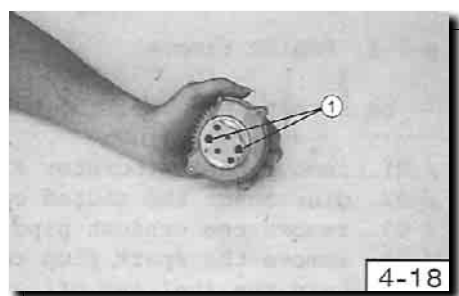
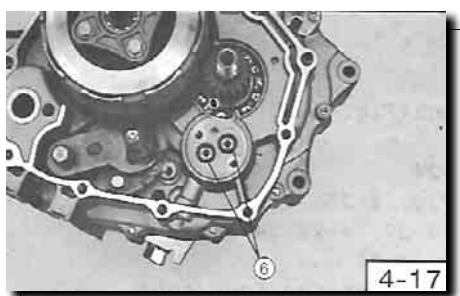
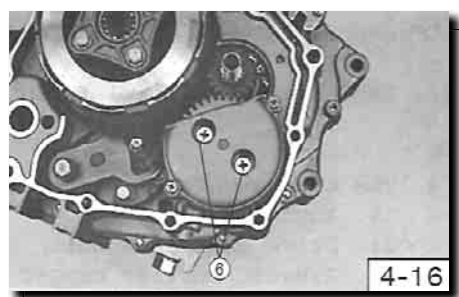
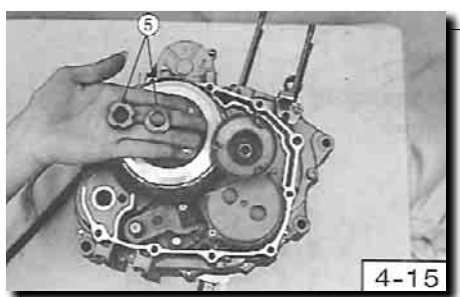
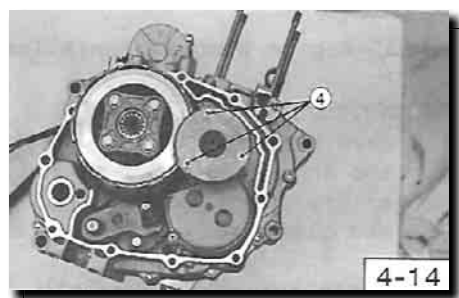
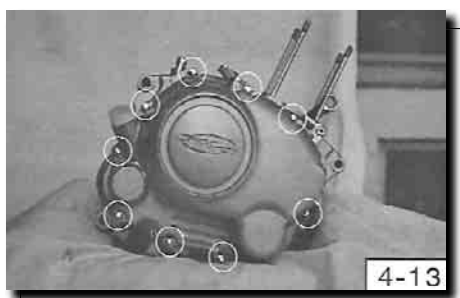
01. install the outer and inner rotors into pump body Fig. 4-22.
02. put pump shaft by aligning the flat on shaft to inner rotor.
03. put the gasket and pump cover (2). Tighten the screw (3).
04. install the 2 o-rings and tighten the 2 mounting bolts.
05. install the oil pump gear and cover.
06. tighten the 2 bolts.
* torque: 4.0-5.0 kg-m
07. install the oil filter rotor.
- 08, install the R. crankcase cover.

CAUTION

1. MAKE SURE TO PUT SOME ENGINE OIL BEFORE INSTALL O-RING.
2. MAKE SURE THE WASHER WITH THE MARK "OUTSIDE" FACING UP.



ENGINE DETAILS



ENGINE DETAILS

4-3. ENGINE REMOVAL/INSTALLATION SERVICE INFORMATION

CAUTION

1. WHEN REMOVING ENGINE, A FIRM ENGINE STAND IS REQUIRED TO SUPPORT THE ENGINE. BE SURE DO NOT USE HAMMER OR SCREW DRIVER TO STRIKE OR PRY THE ENGINE. DO NOT DAMAGE THE CRANKCASE MATTING SURFACES AND CLEAN OFF ALL GASKET MATERIAL FROM THE MATING SURFACES.

2. AFTER CRANKCASE ASSEMBLY, CHECK TRANSMISSION SYSTEM OPERATION SMOOTHLY. AND THEN START ENGINE AND CHECK THE LUBRICATION SYSTEM IS WORKING NORMALLY.

3. ENGINE OIL CAPACITY: 1.1 L AT DISASSEMBLY
1.0 L AT CHANGE

4. THE TORQUE VALUES:

- | | |
|---------------------------------------|---------------|
| 1). ENGINE BRACKET BOLT: | 2.0 - 2.5 KGM |
| 2). DRIVE GEAR LOCK BOLT: | 0.8 - 1.2 KGM |
| 3). EXHAUST MUFFLER HANGER LOCK BOLT: | 2.4 - 3.0 KGM |
| 4). EXHAUST PIPE JOINT LOCK NUT: | 0.8 - 1.2 KGM |

4-3 1. Engine removal

Be sure to turn off- the fuel clock (Fig. 4•23)

01. remove the carburettor Fig. 4-24
02. disconnect the clutch cable Fig. 4-25. 4-26
03. remove the exhaust pipe Fig. 4-27, 4-28, 4-29, 4-30
03. remove the spark plug cap Fig. 4-31
04. turn the fuel cap off and disconnect the fuel cube
05. disconnect the generator wire connector Fig. 4 32

WARNING

ATV WITH IMPROPER MODIFICATIONS.

AWARENESS

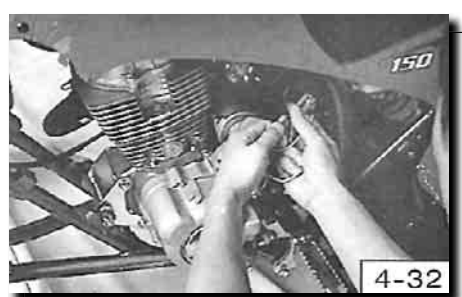
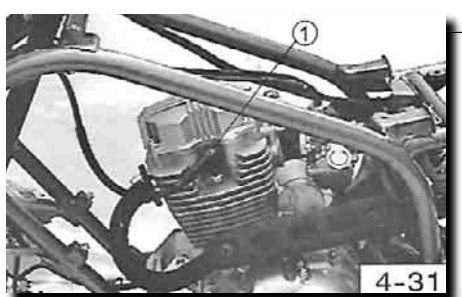
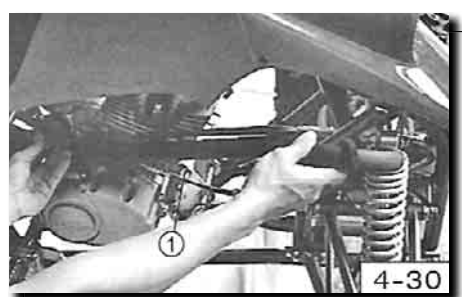
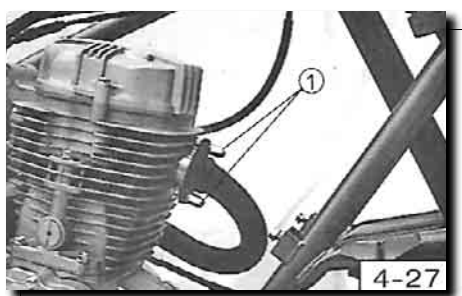
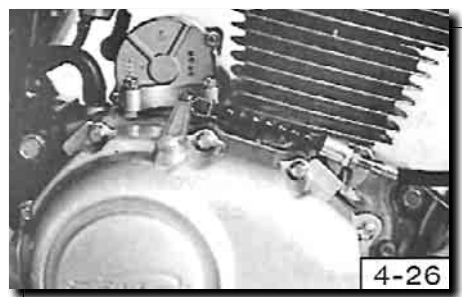
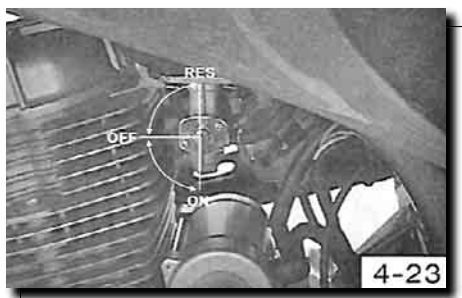
Improper installation of accessories or modification of this ATV may change ATV handling condition which could lead to an accident.

SOLUTION

1. Never modify this ATV through improper installation or use of accessories.
2. All parts and accessories added to this ATV should be genuine maker or equivalent components designed for use on this ATV and should be installed and used according to instructions.



ENGINE DETAILS



ENGINE DETAILS

continue 4-3-1. Engine removal

- 06. remove the starter motor wire (1) Fig. 4-33
- 07. remove the drive gear and chain Fig. 4-34, 4-35
- 08. remove the gear shift lever bolt and gear shift lever Fig. 4-36, 4-37
- 09. remove the bolts Fig. 4-38, 4-39
- 10. remove the engine from left to right Fig. 4-40

4-3-2. Engine Installation

- Engine installation should follow the reverse order of removal.

After installation be sure to perform the follows test/adjustment:

- 01. throttle operation
- 02. clutch lever free play adjustment, and
- 03. drive chain adjustment.

CAUTION

WHEN INSTALLING THE ENGINE, DO NOT DAMAGE THE BOLT THREAD AND ROUTE THE WIRES AND CABLES PROPERLY.

WARNING 1

SERVICING AN ENGINE WHILE IT IS RUNNING.

AWARENESS 1

Hoc surface or moving parts can harm people. Electrical components can be damaged.

SOLUTION 1

Turn off the engine when performing maintenance unless otherwise specified.

WARNING 2

STARTING OR RUNNING THE ENGINE IN A CLOSED AREA.

AWARENESS 2

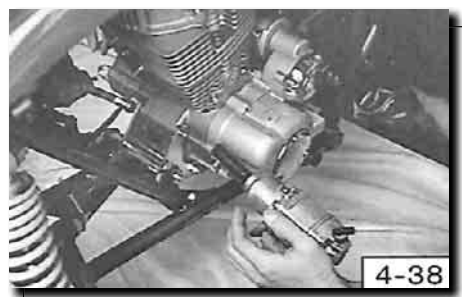
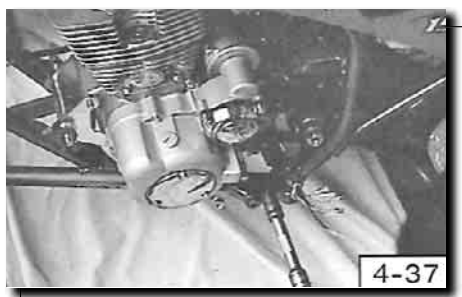
Exhaust smoke is poisonous and may cause loss of consciousness and death within a short time.

SOLUTIONS 2

Only run ATV in an area with ample atmosphere.



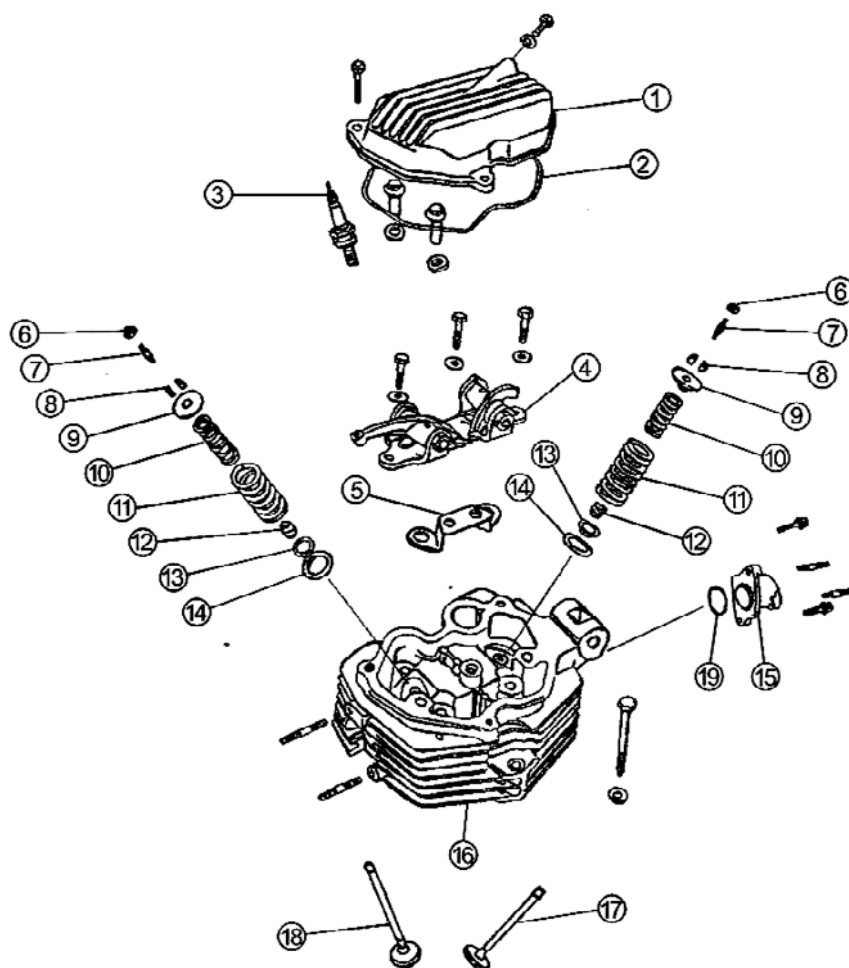
ENGINE DETAILS



ENGINE DETAILS

4-4. CYLINDER HEAD/VALVE BRIEFING

- | | | | |
|-------|-------------------------|-------|-------------------------|
| (01). | cylinder head | (02). | gasket, head cover |
| (03). | spark plug | (04). | rocker arm holder |
| (05). | guild push rod | (06). | nut, tapping adjuster |
| (07). | screw tapping adjusting | (08). | cotter |
| (09). | retainer valve spring | (10). | spring, valve inner |
| (11). | spring valve outer | (12). | seal, valve stem |
| (13). | seat valve spring inner | (14). | seat valve spring outer |
| (15). | insulator carburettor | (16). | head cylinder |
| (17). | valve IN | (18). | valve EX |
| (19). | o-ring | | |



ENGINE DETAILS

4-4. CYLINDER HEAD / VALVE

NOTE

SERVICE INFORMATION

ITEM	STANDARD (MM)	SERVICE LIMIT (MM)
01. Valve clearance (cold engine)	IN: 0,05 - 0,1 EX: 0,05 - 0,1	
02. Cylinder compression	10 - 14 Kg./cm2	8 Kg./cm2 or less
03. Cylinder head war page	0,05 or less	0,1 or more
04. Rocker arm clearance	IN: 0,05 - 0,25 EX: 0,05 - 0,25	0,4 or more 0,4 or more
05. Rock arm - shaft / clearance	IN: 0,013 - 0,46 EX: 0,13 - 0,46	0,126 or more 0,126 or more
06. Valve seat angle	IN: 80 - 90 degree EX: 80 - 90 degree	90 degree or more 90 degree or more
07. valve stem O.D.	IN: 5,45 - 5,465 EX: 5,45 - 5,465	5,42 or less 5,42 or less
08- Valve guide I-D.	IN: 5,475 - 5,505 EX: 5,475 - 5,485	5,505 or more 5,525 or more
09. Valve stem - guide / clearance	IN: 0,01 - 0,035 EX: 0,03 - 0,055	0,035 or more 0,055 or more

CAUTION1.

1. WHEN ASSEMBLING, APPLY MOLYBDENUM DISULFIDE OR ENGINE OIL ON THE VALVE GUIDE MOVEABLE PARTS AND VALVE ARM SLIDING FACES FOR LUBRICATION.

2. THE VALVE ROCKER ARM SHOULD BE LUBRICATED WITH ENGINE OIL THROUGH THE CYLINDER HEAD OIL PASSAGE. CLEAN THE ENGINE OIL PASSAGE BEFORE CYLINDER HEAD ASSEMBLY.

3. AFTER DISASSEMBLY, CLEAN THE REMOVED PARTS AND CRY THEM WITH COMPRESSED AIR BEFORE CONDUCTING ANY INSPECTION.

4. THE TORQUE VALUES

- | | |
|-------------------------------|---------------|
| 1). CYLINDER HEAD COVER BOLT: | 0.8 - 1.2 KGM |
| 2). CYLINDER HEAD LOCK NUT : | 2.3 - 2.8 KGM |
| 3). CAM FOLLOWER BOLT: | 1.5 - 2.0 KGM |
| 4). ROCKER ARM BOLT: | 1.5 - 2.0 KGM |

ENGINE DETAILS

NOTE

PROBLEMS SHOOTING:

<Q-A> Poor performance at idle speed - compression too low?

- incorrect valve clearance too small
- burned or bent valve
- incorrect valve timing
- broken valve spring
- valve seats not airtight
- leaking cylinder head gasket
- warped or cracked cylinder head
- poorly installed spark plug

<Q-A> Compression too high?

- excessive carbon build-up in combustion chamber or on piston head

<Q-A> White smoke from exhaust muffler?

- worn or damaged valve stem or guide
- damaged valve stem oil seal
- Worn piston ring

<Q-A> Abnormal noise?

- Incorrect valve clearance; too large
- Burned valve and rocker arm
- Worn camshaft or cam follower
- Worn valve guide

4-4-1. Cylinder head cover removal Fig. 4-42

01. remove the 3 bolts attaching on cylinder head cover
02. remove the cylinder head
03. check the cylinder head cover o-ring, replace it if damage

4-4-2. Rock arm set removal. fig- 4-42, 4-42A

01. remove the 3 bolts
02. remove the rock arm set
03. measure L & R rocker arm clearances (a)
 - * standard: 0.05-0.25mm

CAUTION

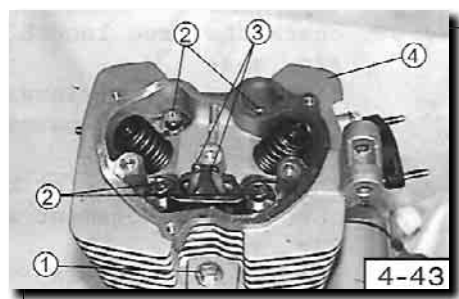
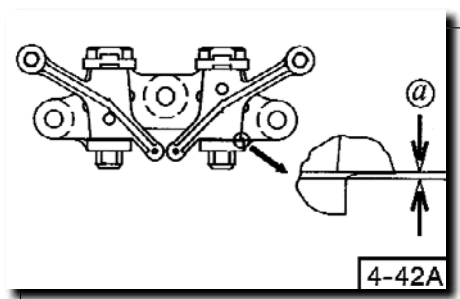
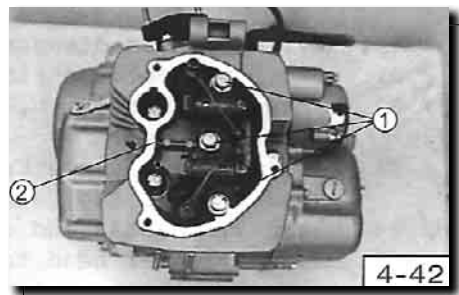
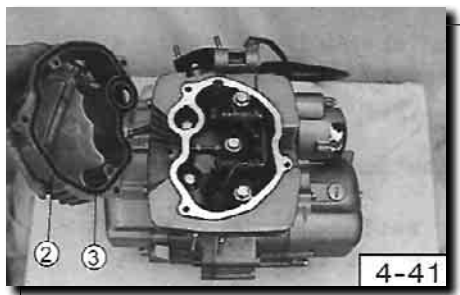
TURN THE PISTON ON TOP END BEFORE MOVING THE ROCK ARM SET. WHEN REMOVING THE ROCK ARM SET. LOOSEN THE CENTER BOLTS AND THEN L & R BOLT.

4-4-3. Cylinder head removal (Fig. 4-43)

01. remove the intake and exhaust valve push bars
02. remove the cam follower bolts (1)
03. remove cylinder head lock nuts diagonally (2).
04. remove the push bar guide plate (3)
05. remove the cylinder head (4)



ENGINE DETAILS



ENGINE DETAILS

4-4-4. Cylinder head disassembly and check (Fig. 4-44, 4-45)

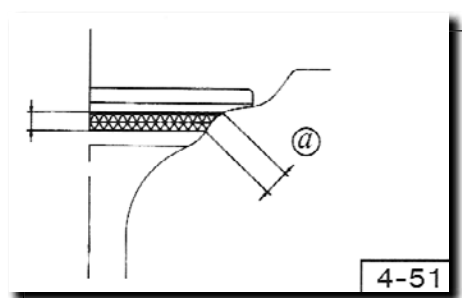
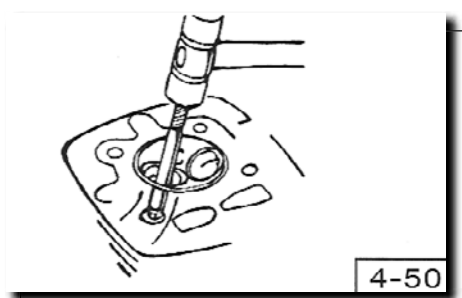
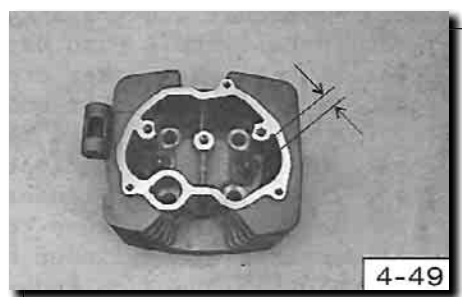
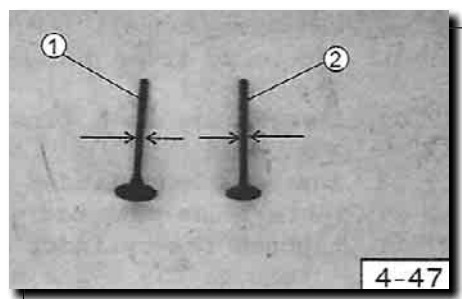
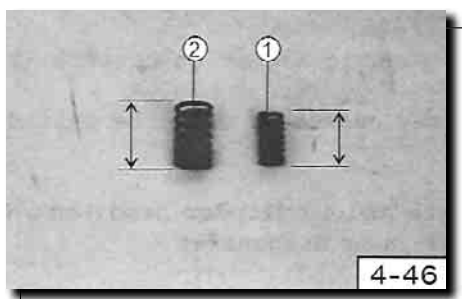
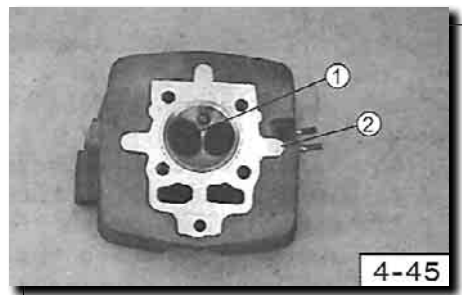
01. remove the valve spring cotters by spring compressors
02. remove the retainers, springs, springs seats, washers, and valve stem seals.
03. remove carbon deposits from the combustion chamber (1) and Nexhaust ports Fig. 4-45
04. clean all gasket and cylinder surface
05. check cylinder head for war page for replaced (1).
 - * service limit: 0.1mm or more
06. check the free length of the inner and outer springs Fig. 4-46
 - * service limit: inner spring - 33.5mm (1)
outer spring - 46.9mm (2)
07. check valve stem for bending, burning, or abnormal wear check valve movement and measure each valve stem O.D. Fig: 4-47
 - * service limit: IN - less than 5.42mm for replace (1)
EX - less than 5.40mm for replace(2)
08. clean any carbon from valve guide and measure the guide I.D. Fig. 4-48, 4-49
 - * service limit: IN - more than 5.505mm for replace
EX - more than 5.525mm for replace
09. apply engine oil to new o-rings and install them into new valve guides. Then, drive in the new valve guides.
10. ream the new valve guides. Fig. 4-50
11. clean the cylinder head thoroughly to remove any metal particles.
12. remove carbon deposits from combustion chamber and valves.
13. replace valve, if the valve face is rough or worn unevenly.
14. check valve seat width, if too wide or narrow (a) Fig. 4-51
 - * service limit: 1.2-1.5mm or over for grind

CAUTION

1. DO NOT DAMAGE THE CYLINDER HEAD MATING SURFACE.
2. CHECK FOR DAMAGE AFTER DRIVING IN THE VALVE GUIDES.
3. THE NEW VALVE GUIDES MUST HAVE OVERSIZED O.D.



ENGINE DETAILS



ENGINE DETAILS

4-4-5. Cylinder head assembly and installation

- The installation should follow the reverse order of removal.

01. lubricate each valve stem with engine oil.

02. insert the valves into the valve guides.

03. apply oil on valve stem seals and install them into guides

04. install the valve spring seat, washers, inner, and outer springs and retainers.

05. compress the valve springs using the valve spring compressor. and then install the valve cotters.

06. tap valve stems gently with a plastic hammer to cotters (1). Fig. 4-52

07. install the dowel pins (1) and new gasket (2) onto the cylinder Fig. 4-53

08. install the cylinder head

09. install the push bar guide plate and 4 cylinder head lock nut

11. tighten the cylinder head lock nuts diagonally.

* torque: 2.3 - 2.8 kg-m

12. install cam follower bolts, copper washer then tighten bolt.

* torque: 1.8 - 2.3 kg-m

13, install the 2 push bars

14. install the rocker arm set, bolts, and copper washers.

15. tighten the centre bolt and then L & R boles

* torque: 1.5 - 2.0 kg-m

16. adjust the valve clearance

17. install a new cylinder head cover o-ring onto the cylinder head cover. Be sure to put the o-ring into the groove.

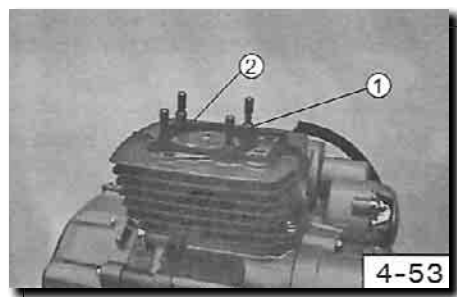
18. install the cylinder head cover.

19. tighten the 3 cylinder head cover bolts.

* torque: 0.8 - 1.2 kg-m



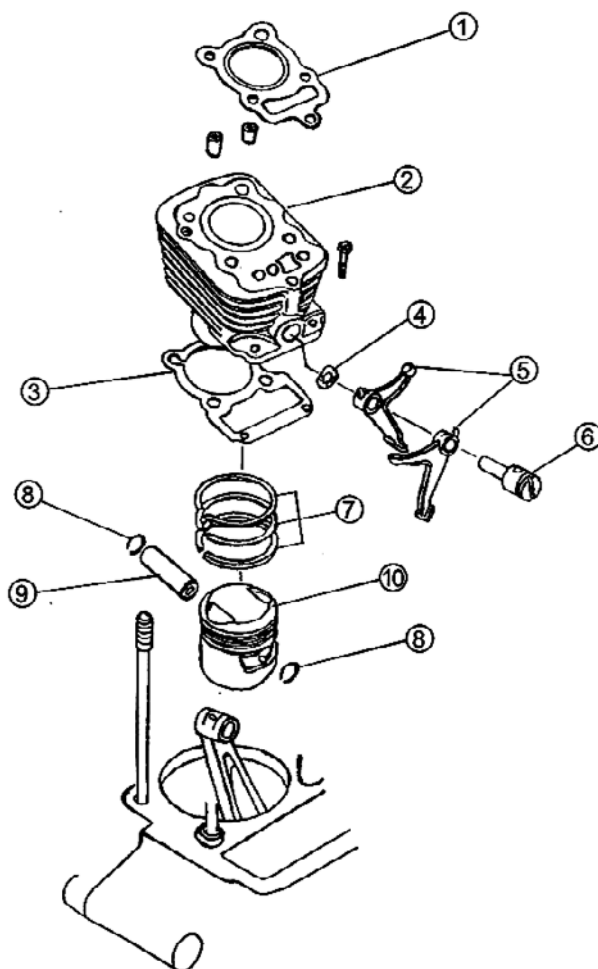
ENGINE DETAILS



ENGINE DETAILS

4-5. CYLINDER/PISTON BRIEFING

- | | | | |
|-------|----------------------|-------|-------------------------|
| (01). | gasket cylinder head | (02). | cylinder |
| (03). | gasket cylinder | (04). | washer wave 12.3*21*0.2 |
| (05). | follower cam | (06). | shaft cam follower |
| (07). | piston ring | (08). | circlip |
| (09). | piston pin | (10). | piston |



ENGINE DETAILS

4-5. CYLINDER/PISTON

NOTE SERVICE INFORMATION

CYLINDER

ITEM	STANDARD (MM) 125/150	SERVICE LIMIT (MM)125/150
01. Cylinder bore	56,5 - 56,6 / 62 - 62,1	56,6 / 62,1 or more
02. Cylinder war page		
03. Cylindricity	0,01 or less	0,05 or more
04. True roundness	0,01 or less	0,05 or more

PISTON/PISTON RING

ITEM	STANDARD (MM) 125/150	SERVICE LIMIT (MM)125/150
01. Ring - grove (top) clearance (2nd)	0,5 - 0,75 / 0,45 - 0,7 0,5 - 0,75 / 0,8 - 1,05	0,85 / 0,09 or more 0,85 / 1,05 or more
02. Ring end gap(top) clearance (2nd) side rail oil ring	0,15 - 0,35 / 0,1 - 0,3 0,15 - 0,35 / 0,1 - 0,3 0,2 - 0,5 / 0,3 - 0,9	0,5 or more 0,5 or more 0,5 or more
03. Piston O.D. (125) (150)	56,45 - 56,48 61,97 - 61,99	56,3 or less 61,8 or less
04. Piston O.D. measure : location	10mm from bottom of piston skirt	
05. Piston - Cyl. clearance (125) (150)	0,01 - 0,075 0,005 - 0,065	0,135 or more 0,125 or less
06. Pis. Pin hole I.D.	15,002 - 15,008	15,012 or more

<OTHERS>

ITEM	STANDARD (MM)	SERVICE LIMIT (MM)125/150
01. Piston pin O.D.	15,003 - 15,005	15,012 or more
02. Piston - Pis. pin clearance	0,005 - 0,013	0,015 or more
03. Connecting rod small end I.D.	15,01 - 15,02	15,032 or more

CAUTION

AFTER DISASSEMBLY, CLEAN THE REMOVED PARTS AND CRY THEM WITH THE SLOW COMPRESSED AIR BEFORE CONDUCTING ANY INSPECTION.

ENGINE DETAILS

NOTE

PROBLEMS SHOOTING

<Q-A> Compression too low?

- worn, stuck, or broken piston rings
- worn or damaged cylinder or piston

<Q-A> Compression too high?

- excessive carbon build-up in combustion chamber or on piston head

<Q-A> White smoke from exhaust muffler?

- worn or damaged cylinder or piston
- worn or damage piston ring

<Q-A> Abnormal noise - piston?

- worn or damaged cylinder, piston, or piston ring
- worn piston pin or piston pin hole

4-5-1. Cylinder removal (Fig. 4-54)

01. remove the cylinder head
02. remove the cylinder head dowel pins
03. remove the 2 bolts and remove the cylinder (1)

4-5-2. Cam follower removal Fig. 4-55

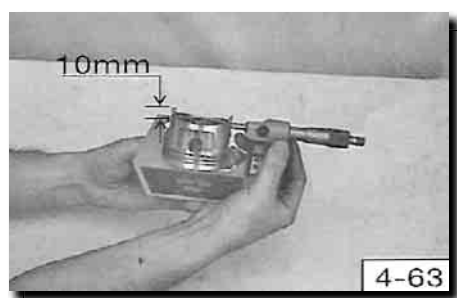
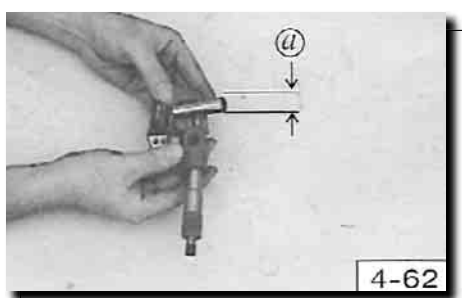
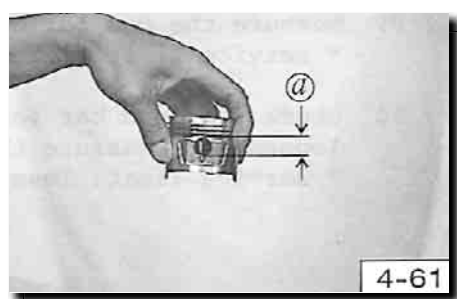
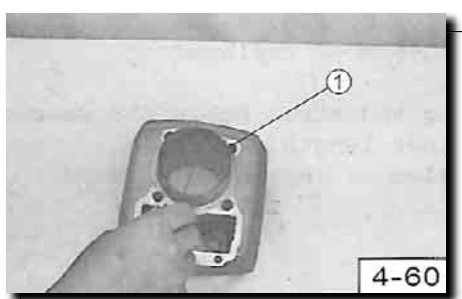
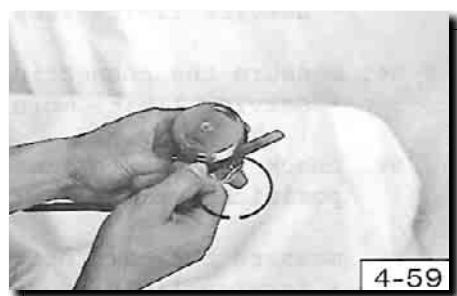
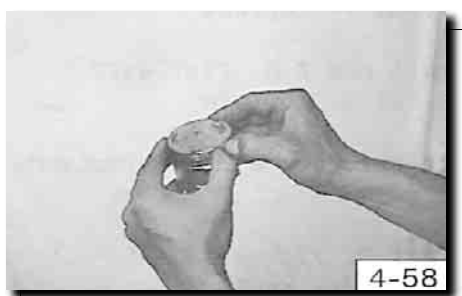
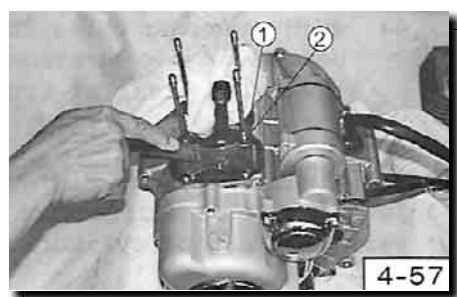
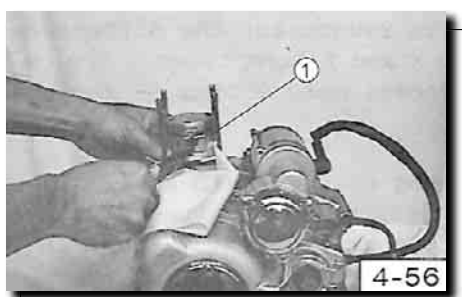
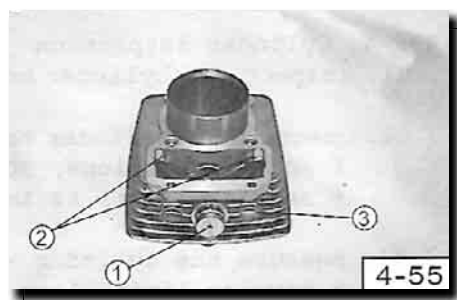
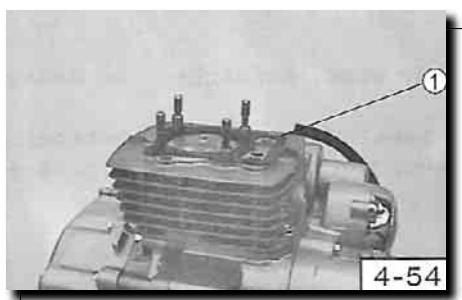
01. remove the cam follower shaft (1)
02. remove the cam follower (2) and 12mm washer (3) Fig. 4-55
03. remove the cylinder gasket (1) and dowel pins (2) Fig. -S-57

4-5-3. Piston removal and inspection

01. remove the piston pin clip. Be sure put a towels under piston to prevent the clip drops (1) into the crankcase. Fig. 4-56
02. clean any gasket material from cylinder surface Fig. 4-57
03. press the piston pin out of the piston and remove the piston
04. inspect the piston, piston pin, and piston rings
05. remove piston rings. Do not damage rings set Fig. 4-53
05. remove carbon deposits in the piston ring grooves.
06. install piston rings and measure ring to groove clearance.
 - * service limit TOP : 0.09mm or more --- replace
 - 2nd. : 0.09mm or more --- replace (Fig. 4-59)
07. remove the piston rings (1) and insert each piston ring into the cylinder bottom. And measure the ring end gap. Fig. 4-60
 - * service limit: 0.05mm
08. measure the piston pin hole I.D. (a) Fig. 4-61
 - * service limit: 15.012mm
09. measure the piston pin O.D.(a) Fig. 4-62
 - * service limit: 14.96mm or less --- replace
10. measure the piston O.D. to take measurement at 10mm from the bottom and 90 degree to the piston pin hole position. Fig. 4-63.
 - * service limit; 61.8mm



ENGINE DETAILS



ENGINE DETAILS

4-5-4. Cylinder inspection

01. inspect the cylinder bore for any wear, scratches, or damage.

02. measure the cylinder bore at 3 levels (top, middle, bottom) in X and Y directions, 90 degree to the piston pin. Fig. 4-64

* service limit: 62.1mm

03. measure the cylinder - piston clearance.

* service limit: less than 0.1mm replace

04. each measured value is the true roundness, the difference between the values -measured in X and Y directions, . Fig. 4-65

* service limit of true roundness: more 0.05mm -- replace

NOTE

THE CYLINDRICITY, THE DIFFERENCE AMONG THE VALUES MEASURED AT THE 3 LEVELS IN X OR Y DIRECTION, IS SUBJECT TO MAX. VALUE CALCULATED.

* SERVICE LIMIT OF CYLINDRICITY : MORE THAN 0.05MM -- REPLACE

05. inspect the top of the cylinder for warp Fig. 4-66.

* service limit: less than 0.05mm -- replace

06. measure the connecting rod small end I.D. Fig. 4-67

* service limit: more than 15.032 -- replace

07. check the cam follower contact face for ear or electrode position peeling Fig-. 4-68.

08. measure the cam follower shaft I.D. Fig. 4-69

* service limit: more than 12.05mm -- replace

09. measure the cam follower shaft O.D. Fig. 4-70

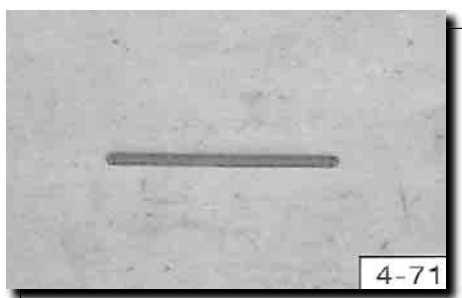
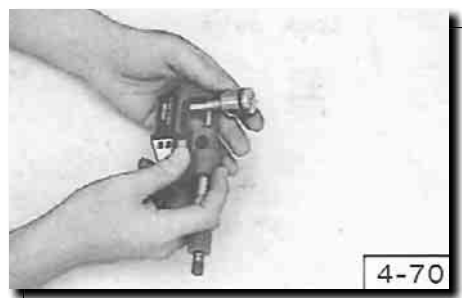
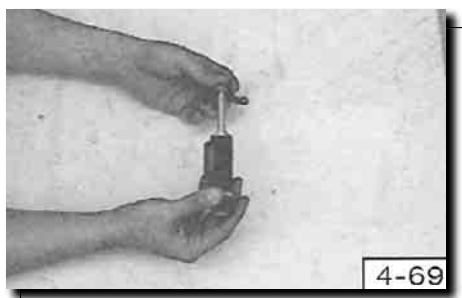
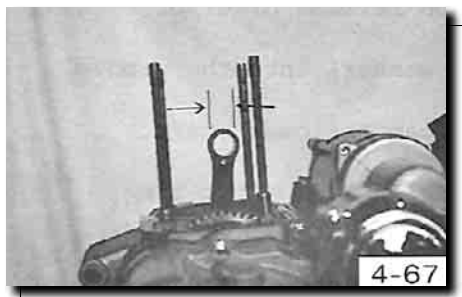
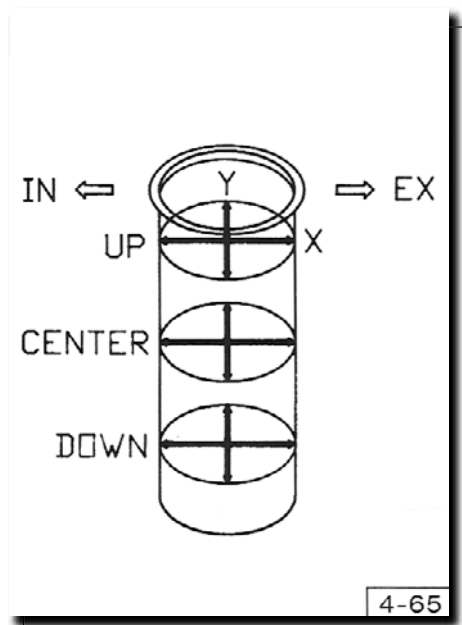
* service limit: more than 11.95mm -- replace

10. check the push bar for bending and steel balls for wear or looseness. Measure the push bar length.

* service limit: less than 141mm -- replace Fig. 4-72



ENGINE DETAILS



ENGINE DETAILS

4-5-5. Piston installation Fig. 4-72

- The installation should follow the reverse order of removal.

01. install 3rd. ring rail onto the piston

02. install oil-ring, side rail, and 2nd. ring onto the piston

03. install top ring onto the piston

04. put engine oil on each rings

05. remove the gasket from crankcase surface. Be sure to put a towels in crankcase to prevent foreign matters falling into.

06. install the piston, piston pin, and piston pin clip. The piston "IN" mark is located on intake valve side. Be sure to put a towels in the crankcase to prevent piston pin clip falling into- Fig. 4-73

4-5-6- Cylinder installation

- The installation should follow the reverse order of removal.

01. install the 12mm washer (wave washer) into the groove.

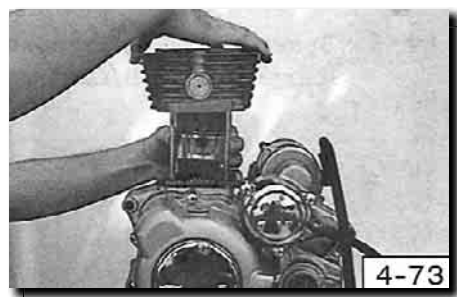
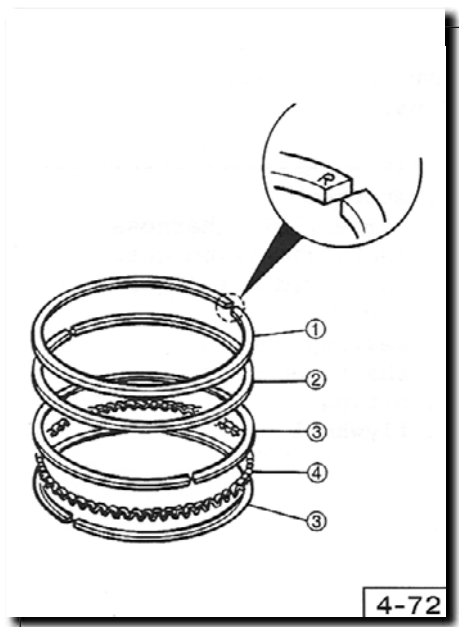
02. install the cam follower and cam follower shaft.

03. apply engine oil on the cam follower shaft o-ring

04. put the cylinder though the piston. When installing, be carefully that ring end cap should not be 90 degree co piston pin. Ring end gaps should align with the 4 cylinder head lock nuts.



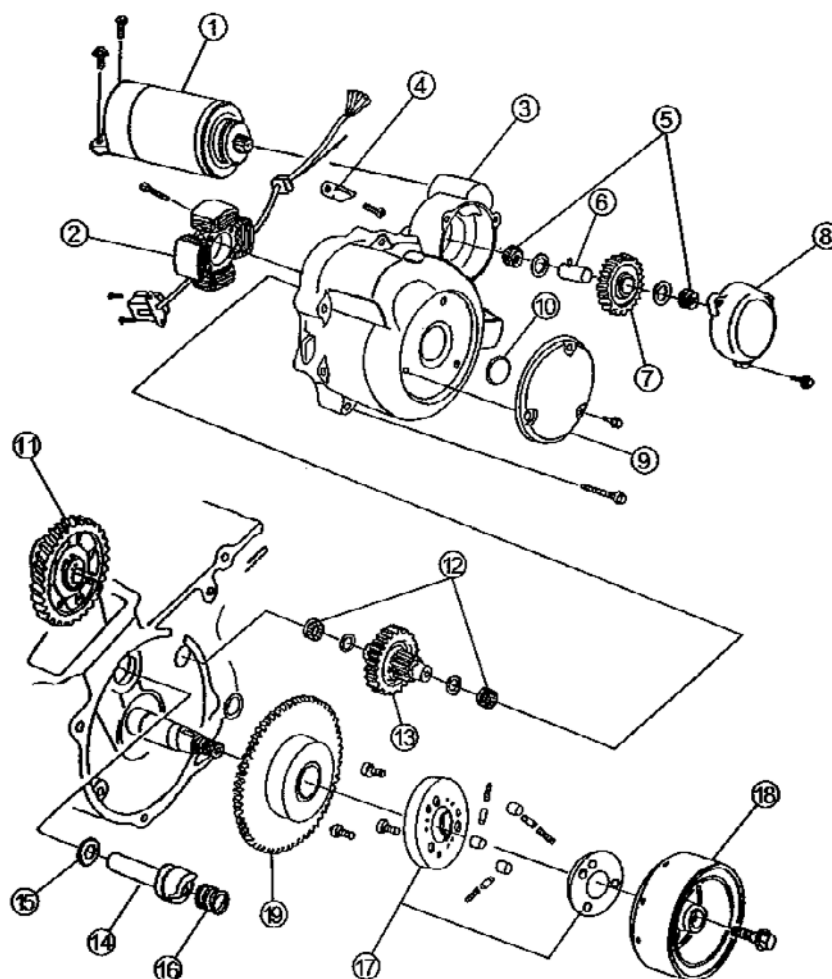
ENGINE DETAILS



ENGINE DETAILS

4-6. STARTER MOTOR/GENERATOR/L. CRANKCASE COVER/ STARTER CLUTCH/ CAMSHAFT BRIEFING

- | | | | |
|-------|-----------------------|-------|----------------------|
| (01). | starting motor | (02). | stertor |
| (03). | L crankcase | (04). | camper, wire harness |
| (05). | bearing needle | (06). | shaft reduction gear |
| (07). | gear reduction | (08). | cover reduction gear |
| (09). | cap L crankcase cover | (10). | o-ring |
| (11). | camshaft | (12). | bearing needle |
| (13). | shaft starter gear | (14). | Shaft cam gear |
| (15). | washer | (16). | o-ring |
| (17). | outer starter | (18). | flywheel |
| (19). | gear starting clutch | | |



ENGINE DETAILS

4-6. STARTER MOTOR/GENERATOR/L. CRANKCASE COVER/ STARTER CLUTCH/CAMSHAFT

NOTE SERVICE INFORMATION

ITEMS	STANDARD (MM) 125/150	SERVICE LIMIT (MM)125/150
01. Reduction pinion: shaft O.D.	9,972 - 9,987	9,932 or less
02. Reduction pinion: shaft hole I.D.	10,031 - 10,056	10,096 or more
03. Reduction gear: shaft O.D.-	9,973 - 9,984	9,926 or less
04. Reduction gear: shaft hole I.D.	10,031 - 10,056	10,096 or more
05. Roller O.D.	10,19 - 10,205	10,15 or less
06. Starter gear I.D. :	22,021 - 22,042	22,081 or more
07. Starter gear O.D. :	54,175 - 54,2	54,135 or less

CAUTION

1. DO NOT INSTALL THE STARTER CLUTCH BY FORCE.
2. INSTALL THE GENERATOR BY ALIGNING THE GROOVE IN THE FLYWHEEL WITH THE KEY ON THE CRANKSHAFT.
3. INSTALL THE STARTER MOTOR REDUCTION GEAR SHAFT BY ALIGNING THE SHAFT PIN WITH THE SEAT GROOVE.
4. THE TORQUE VALUES OF FLYWHEEL LOCK BOLT: 0.8 - 1.2 KGM
5. THE SPECIAL TOOLS:
 - 1). FLYWHEEL HOLDER;
 - 2). FLYWHEEL PULLER

NOTE PROBLEMS SHOOTING:

<Q-A> Poor performance at high speed and starting?

- improperly tightened flywheel lock bolt

<Q-A> Starter clutch slips?

- worn starter clutch roller
- faulty starter clutch roller or spring
- worn starter gear shaft O.D.

<Q-A> Starring noise?

- worn reduction gear
- worn starter gear
- worn starter clutch roller
- faulty reduction pinion shaft bearing

ENGINE DETAILS

4-6-1. Starter motor removal

01. remove the 2 starter motor mounting bolts (1) and the motor Fig. 4-74
02. inspect the start motor o-ring on any damage.
03. inspect the start motor pinion on any damage.
04. remove the 3 bolts (1) Fig. 4-75
05. remove the reduction gear cover (2) Fig. 4-75
06. remove the reduction gear (1), shaft (2), and washer (3) Fig. 4-76
07. inspect the reduction gear for any damage.
08. inspect the reduction gear cover o-ring (4) for any damage.

4-6-2. L crankcase cover removal Fig. 4-77, 4-78

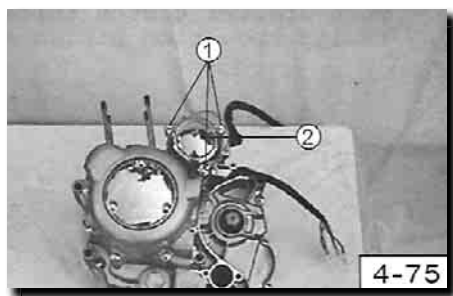
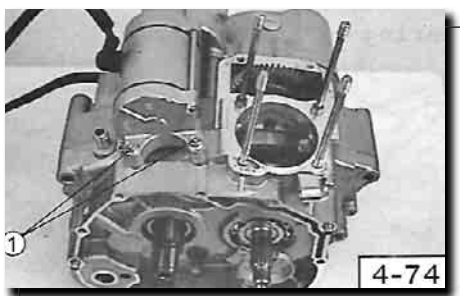
01. disconnect the neutral light switch wire.
02. remove the L crankcase cover bolts
03. remove the L crankcase cover and two dowel pinions
04. clean off all gasket
05. remove the reduction pinion (1) Fig. 4-81

4-6-3. Generator removal

01. remove the flywheel lock bolt Fig. 4-79
02. remove the flywheel Fig. 4-79

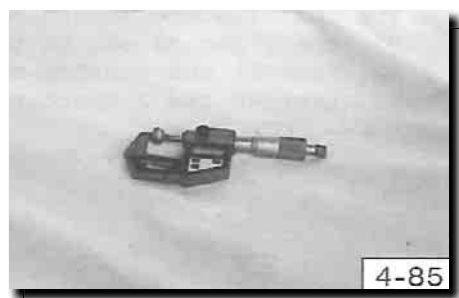
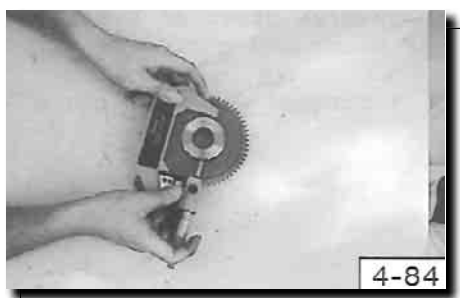
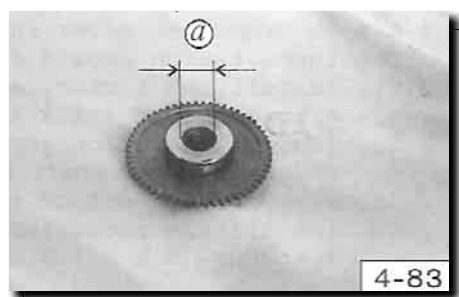
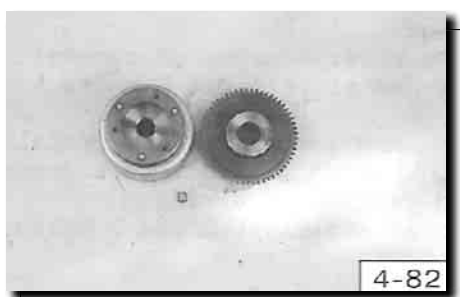
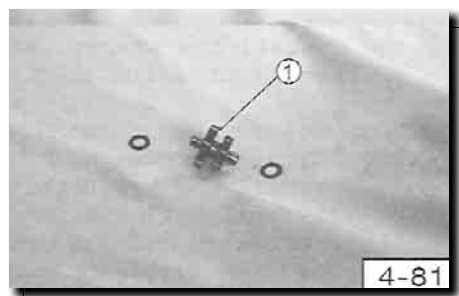
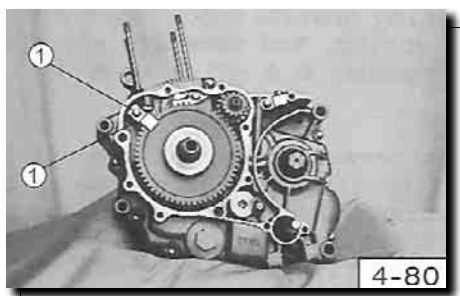
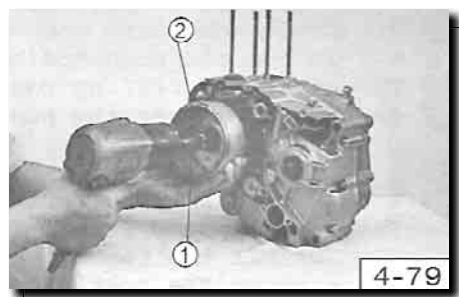
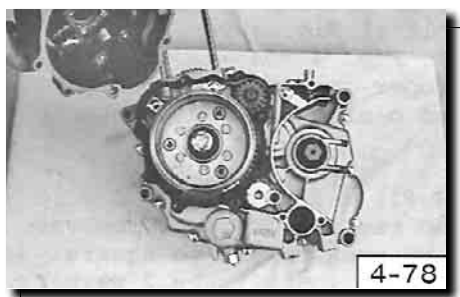
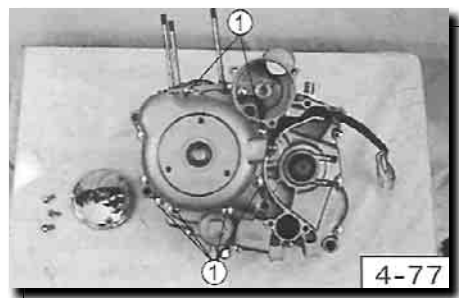
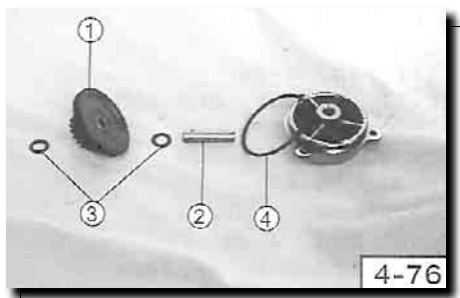
4-6-4. Starter clutch removal and inspection

01. remove the bolt (1) on starter gear set (2) Fig. 4-80
02. remove the starter gear
03. measure the starter gear I.D. (a) Fig. 4-82, 4-83
* service limit: more than 22.081mm -- replace
04. measure the starter gear O.D. Fig. 4-B4
* service limit: less than 54.135mm -- replace
05. measure the starter clutch roller O.D. Fig. 4-85
* service limit: 10.15mm





ENGINE DETAILS



ENGINE DETAILS

4-6-5. Camshaft removal

01. remove the camshaft set plate (1) Fig. 4-86
02. remove the spring (1), camshaft (2), washer, and cam (Fig. 4-86A, 4-86B)
03. inspect the camshaft o-ring for wear or damage
04. measure the cam lobe height (a) Fig. 4-87 x service limit: less than 32.628mm -- replace
04. measure the camshaft hole I.D. (a) Fig. 4-88
 - * service limit: more than 12.0-12.02mm -- replace
05. measure the camshaft O.D. Fig. 4-89
 - * service limit: less than 11.97-11.98mm -- replace
06. remove the push rod holder bolt (1) Fig. 4-90
07. remove the push rod holder (2). Fig. 4-90A
08. check the bearing road for proper operation Fig. 4-90B
09. check the bearing push rod and o-ring for any damage Fig. 4-90B

4-6-6. Camshaft installation Fig. 4-91, 4-86

- The installation should follow the reverse order of removal.

01. install the bearing push rod by pressing it in squarely and tighten the bolt. Don't forget to install the 2 washers.
02. install the cam (1) by aligning the punch mark (2) on the cam with the punch mark on the timing gear (3).
03. install the washer, camshaft, spring, and camshaft set plate and tighten the bolt.
 - * torque: 0.8 - 1.2 kg-m

4-6-7. Starter gear installation

- The installation should follow the reverse order of removal.

01. install the generator flywheel by aligning the groove in the flywheel with the key on the crankshaft. Do not damage the starter clutch roller during installation.
02. hold the flywheel and tighten the flywheel lock bolt.
 - * torque: 4.0 - 5.2 kg-m

4-6-8. L crankcase cover installation

The installation should follow the reverse order of removal.

01. install the L crankcase cover and tighten the 8 bolts
 - * Torque: 0.8 - 1.2 kg-m
02. install reduction gear, shaft, and washers. Then, install reduction gear shaft by aligning shaft pin with seat groove.
03. apply engine oil on reduction gear cover o-ring.
04. install the reduction gear cover and tighten the 3 bolts
 - * torque: 0.8 - 1.2 kg-m

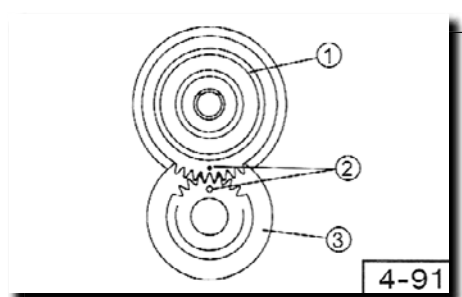
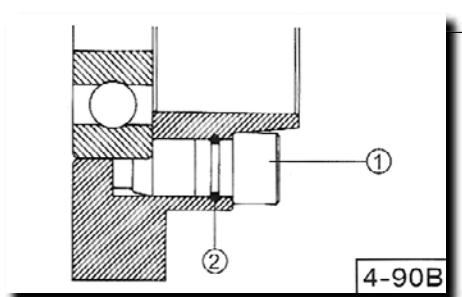
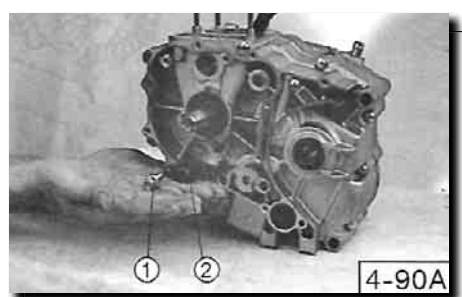
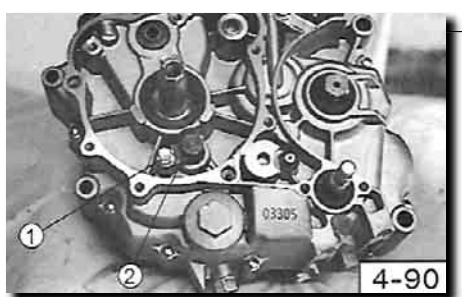
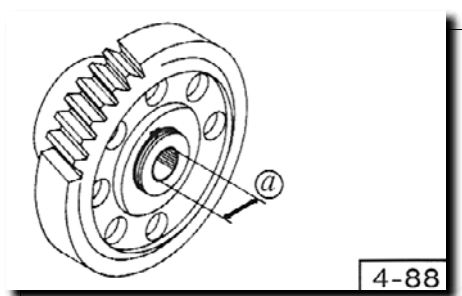
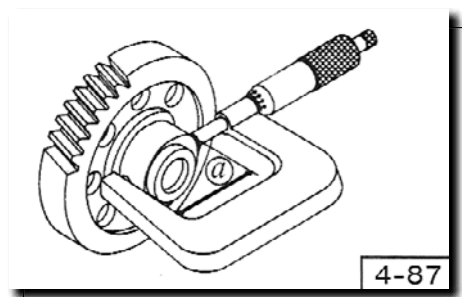
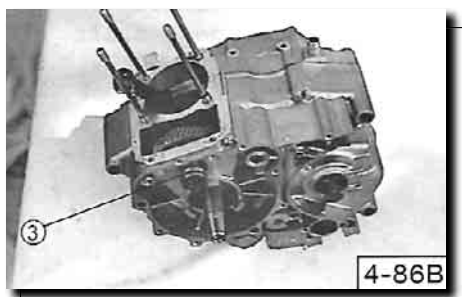
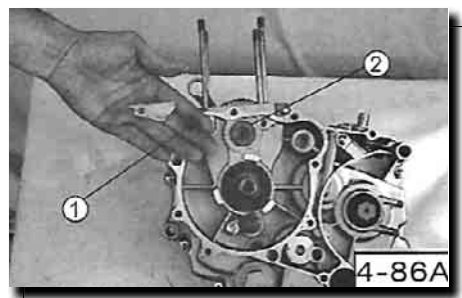
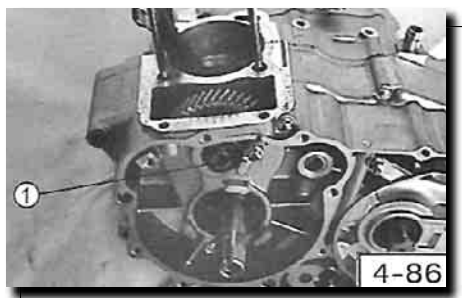
4-6-9. Scarier motor installation

- The installation should follow the reverse order of removal.

01. apply engine oil to the starter motor and o-ring
02. install the starter motor
03. tighten the 2 mounting bolts.
 - * torque: 0.8 - 1.2 kg-m



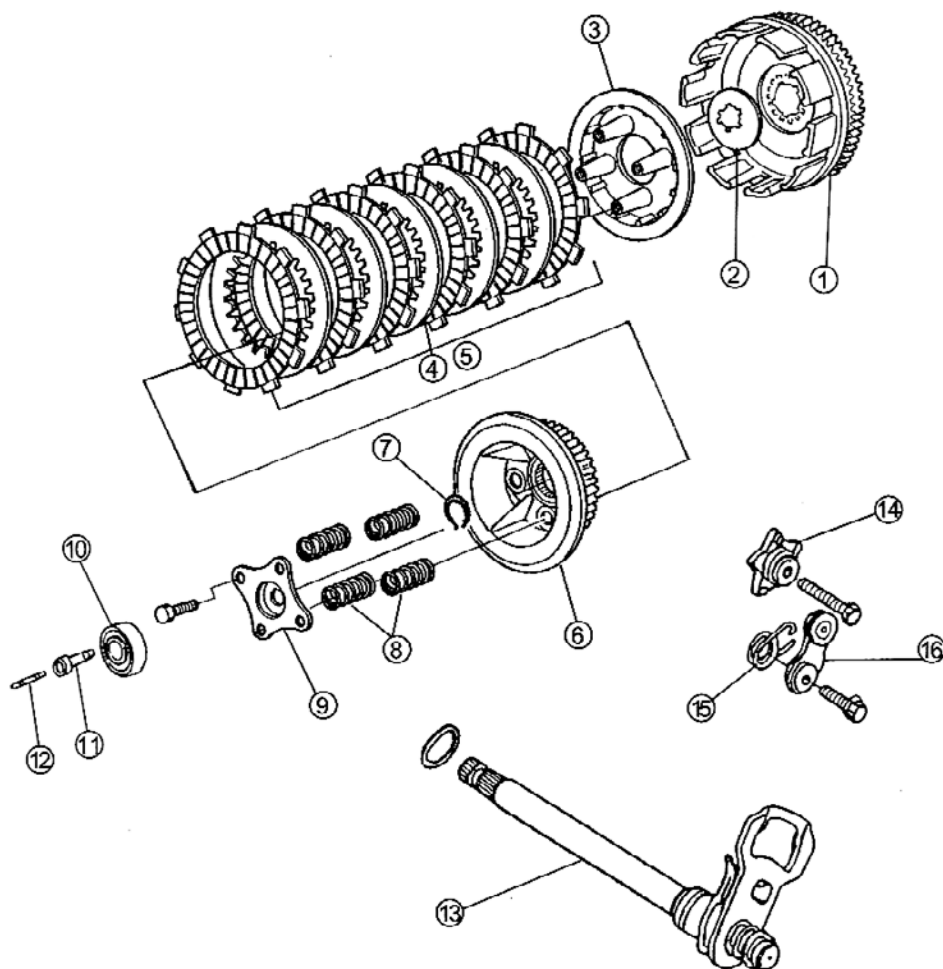
ENGINE DETAILS



ENGINE DETAILS

4-7. CLUTCH/GEAR SHIFT MECHANISM BRIEFING

- | | | | |
|-------|--------------------------|-------|-----------------------|
| (01). | outer clutch | (02). | washer spline |
| (03). | plate clutch pressure | (04). | disc, clutch friction |
| (05). | plate clutch | (06). | center clutch |
| (07). | circlip | (08). | spring clutch |
| (09). | plate clutch lifter | (10). | bearing |
| (11). | pin, clutch lifter guide | (12). | rod clutch lifter |
| (13). | spindle gear shift | (14). | cam gear shift |
| (15). | spring shaft drum stop | (16). | stopper gear shift |



ENGINE DETAILS

4-7. CLUTCH/GEAR SHIFT MECHANISM

NOTE SERVICE INFORMATION

ITEM	STANDARD (MM)	SERVICE LIMIT (MM)
01. Clutch spring free: / length	35,5	34,2 or less
02. Reduction friction: disk thickness	2,9 - 3,0	2,6 or less
03. Clutch place: / bending	0 - 0,1	0,2 or more
04. Outer clutch I.D. :	111 - 111,5	112,5 or more
05. Outer clutch guide O.D. I.D.	11,95 - 11,99 5 - 5,1	11,91 or less 5,5 or more

CAUTION

1. INSTALL THE CLUTCH PLATES IN THE SAME CHAMFER DIRECTION ONLY.
2. INSTALL THE THRUST WASHER WITH THE CHAFER FACING UP AND FLAT RACING DOWN.
3. TORQUE VALUE OF CLUTCH CENTER LOCK BOLT: 0.8 - 1.2 Kgm.
4. SPECIAL TOOLS: UNIVERSAL HOLDER PLIERS

NOTE PROBLEMS SHOOTING

<Q-A> Clutch slips during acceleration?

- no free play, or worn friction disk, or weak spring

<Q-A> Clutch won't operation?

- excessive free play, bent clutch plate

<Q-A> Improper shifting?

- improperly adjusted clutch lever free play (too large)
- bent gear shift spindle, or damaged transmission drum grooves
- worn or deformed gear shift plate, faulty gear shift cam stopper

<Q-A> Clutch won't operate, vehicle run slowly?

- excessive free play, bent clutch plate

<Q-A> Too much pressure on clutch lever?

- kinked, twisted or damaged clutch cable, or damaged clutch lifter

<Q-A> Clutch does not operate smoothly?

- improper clutch outer groove

<Q-A> Gear tripping?

- faulty gear shift cam stopper
- bent gear shift spindle, or worn gear teeth

ENGINE DETAILS

4-7-1. R. crankcase cover removal

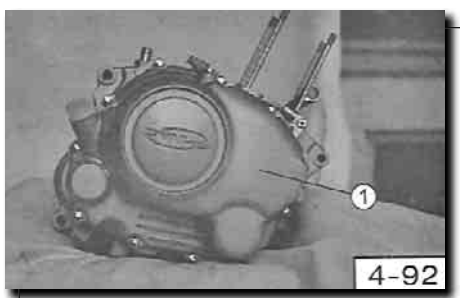
01. drain the engine oil out
02. (option) remove the kick lever
03. disconnect the clutch cable Fig. 4-92
04. remove the R crankcase cover bolts (1) Fig. 4-92
05. remove the R crankcase cover
06. remove the oil filter rotor (1) Fig. 4-93

4-7-2. Clutch removal

01. remove the 4 clutch lifter bolts (1) Fig. 4-94
02. remove the clutch lifter Fig. 4-55
03. remove the bearing and circlip with a pair of pliers. Do not expand it excessively to avoid deformation. Fig. 4-96
04. remove the spring, clutch anger, clutch friction disks and plates. Fig. 4-57
05. remove the thrust washer (1), outer clutch and outer guide Fig. 4-95

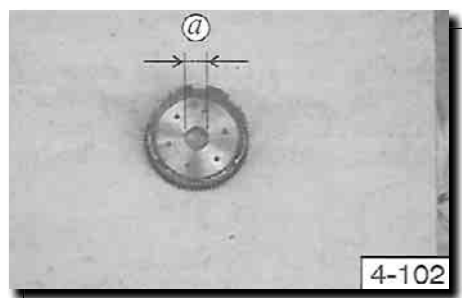
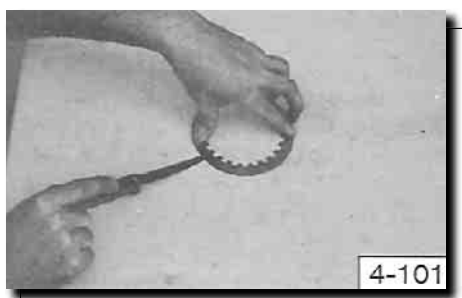
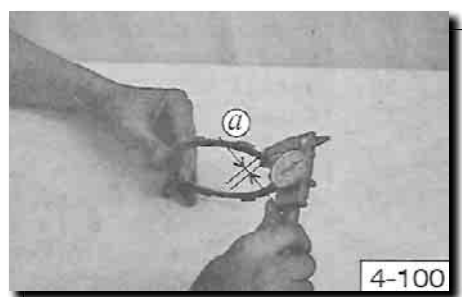
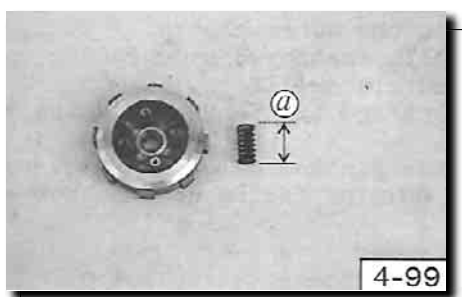
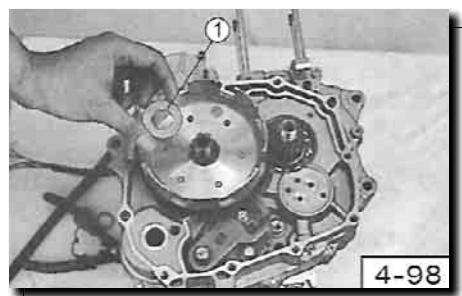
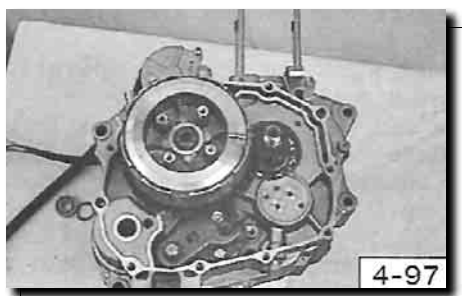
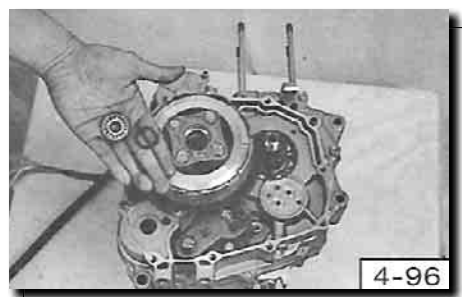
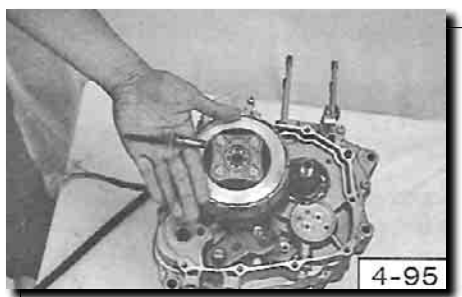
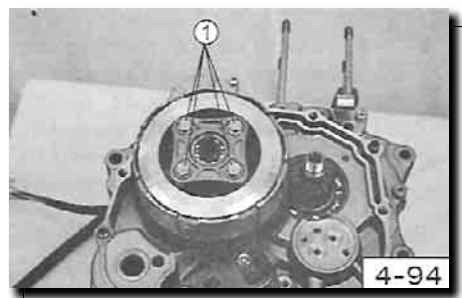
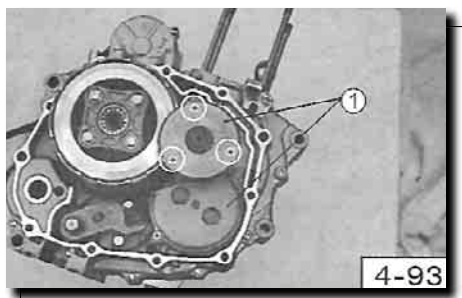
4-7-3. Clutch Inspection

01. check the clutch tension spring to make sure each clutch tension spring free length (a). Fig. 4-99
* service limit: less than 34.20mm -- replace
02. check the clutch friction disc to make sure thickness (a) Fig. 4-100 * service limit: 2.60mm
03. check clutch plate's on bending with a feeler gauge Fig. 4-101 * service limit: 0.20mm
04. check outer clutch groove for scratches from friction disc.
05. measure the outer clutch I.D. (a) Fig. 4-202
* service limit: 112.5mm
06. measure the outer clutch guide I.D. and O.D.
* service limit I.D.: 5.50mm
O.D.: 11-91mm





ENGINE DETAILS



ENGINE DETAILS

4-7-4. Gear shift mechanism removal

01. remove the gear shift pedal (1) Fig. 4-103
02. remove the gear shift spindle (2) and washer (3) Fig. 4-103
03. remove the stopper (1) and spring (2) Fig. 4-104
04. remove the gear shift cam bolt (3.) Fig. 4-204
05. remove the gear shift cam and set pin

4-7-5. Gear shift inspection and installation

- The installation should follow the reverse order of removal.

01. check gear shift cam stopper for any wear or damage -- replace Fig. 4-105
02. check gear shift plate for any wear or deformation -- replace Fig. 4-106
03. check gear shift angles for any wear or damage -- replace Fig. 4-107
04. install the gear shift cam stopper (1) and spring (2) Fig. 4-108
05. tighten the 6 mm lock bolt * torque: 0.8 - 1.2 kg-m
06. install the set pin (1) into the transmission drum hole Fig. 4-109
07. install gear shift cam, aligning the pin hole in gear shift cam. with set pin. after the gear shift cam is on position, put the stopper in the gear shift cam groove and tighten stopper bolt.
08. rotate transmission drum to make sure the stopper operation.
09. tighten the bolt
* torque: 0.8 - 1.2 kg-m
10. install the gear shift spindle and washer. Be sure the return spring aligns with the crankcase tab.
11. install the outer clutch and thrust washer. Be sure thrust washer chamfered side facing up.
12. install the clutch
13. stagger the clutch friction disks and clutch plates and put them on the clutch center.
14. install the clutch center together with the well-arranged friction disks and plates into the outer clutch.
15. install the circlip. The circlip chamfered side facing up
16. install the tension spring and clutch lifter.
17. install the washer to the bolts and tighten the 4 bolts x torque: 0.8 - 1.2 kg-m
18. install the clutch lifter guide pin and oil filter rotor
19. install the washer, the make OUTSIDE facing up and lock nut
* torque: 4.0 - 5.0 kg-m
20. install the oil filter rotor cover
21. check: the gasket for any wear or damage -- replace
22. put the 3 oil filter rotor cover screws - torque: 0.3 - 0.4 kg-m

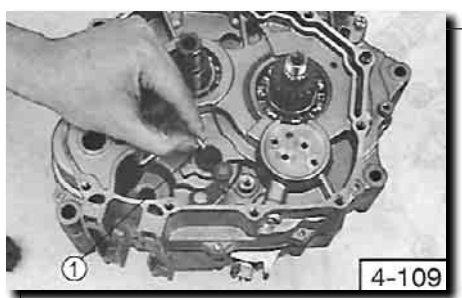
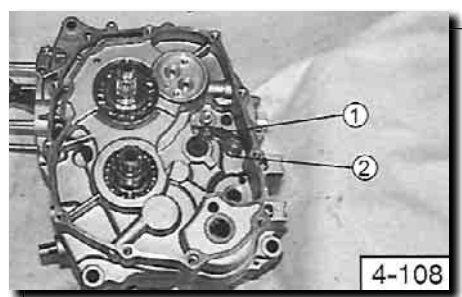
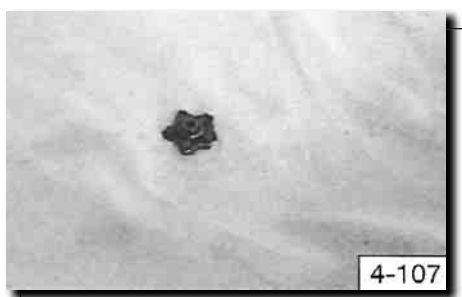
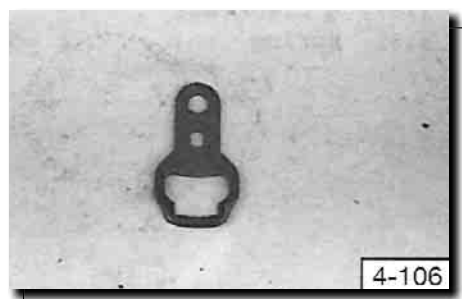
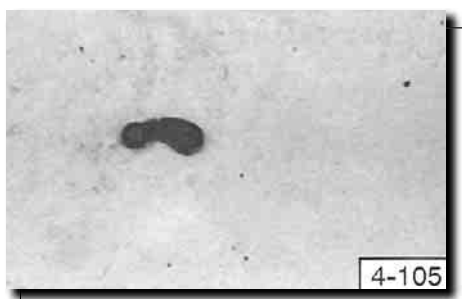
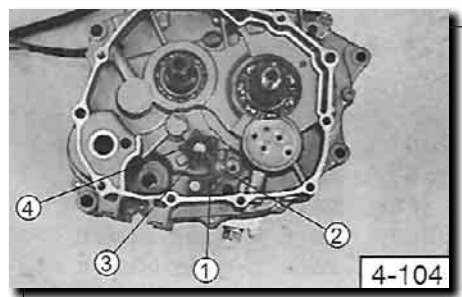
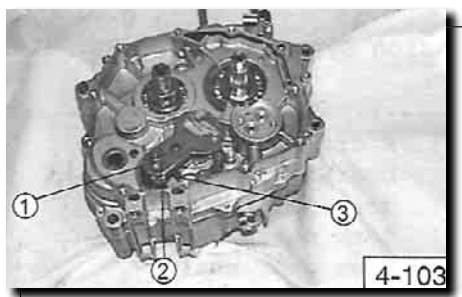
4-7-6. R. crankcase cover installation

- The installation should follow the reverse order of removal by installing the dowel, pins, gasket and install the right crankcase cover and tighten the mounting bolts

* torque: 0.8 - 1.2 kg-m.



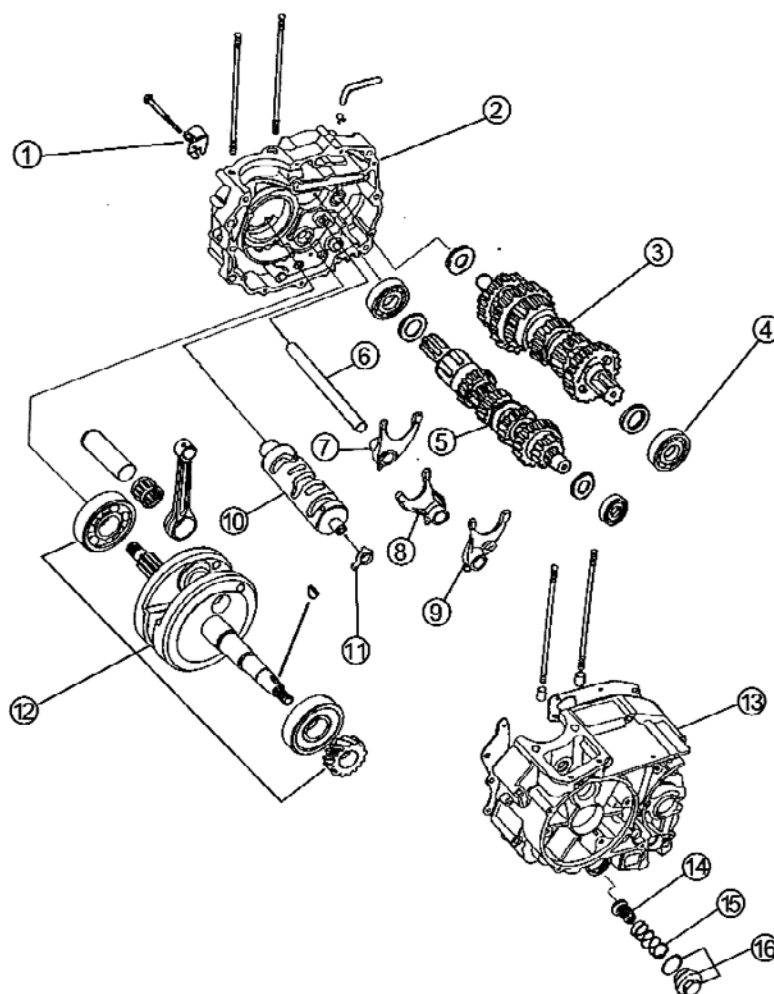
ENGINE DETAILS



ENGINE DETAILS

4-8. CRANKCASE/CRANKSHAFT/TRANSMISSION SYSTEM/STARTER SPINDLE

- | | | | |
|--------|----------------------|-------|------------------------|
| (C-I). | holder clutch wire | (02). | R crankcase |
| (03). | counter shaft | (04). | bearing |
| (05). | main shaft | (06). | gear shift fork |
| (07). | fork R gear shaft | (08). | fork center gear shaft |
| (09). | fork L gear shaft | (10). | drum gear shaft |
| (11). | rotor neutral switch | (12). | crankshaft |
| (13). | L crankcase | (14). | oil filter |
| (15). | spring | (16). | oil filter cap |



ENGINE DETAILS

4-8. CRANKCASE/CRANKSHAFT/TRANSMISSION SYSTEM/STARTER SPINDLE

NOTE

SERVICE INFORMATION

< TRANSMISSION FORK >

ITEMS	STANDARD (MM)	SERVICE LIMIT (MM)
01. Claw thickness	4,93 - 5,0	4,43 or less
02. Fork I.D.	12 - 12,018	12,058 or more
03. Fork shaft O.D.	11,97 - 11,984	11,936 or less

<TRANSMISSION DRUM>

ITEMS	ESTÁNDAR (MM)	SERVICE LIMIT (MM)
01. Left	12,985 - 12,965	12,915 or less
02. Right	20,959 - 20,98	20,919 or less

<TRANSMISSION GEAR>

ITEMS	ESTÁNDAR (MM)	SERVICE LIMIT (MM)
01. Gear I.D. (M. start)	20,02 - 20,041	20,081 or more
(M. 4th.)	20 - 20,021	20,061 or more
(M. 5th.)	20,02 - 20,041	20,081 or more
(S. start)	20,01 - 20,041	20,081 or more
(S. 1st.)	19,52 - 19,541	19,581 or more
(S. 2nd.)	20,02 - 20,041	20,081 or more
(S. 2nd.)	16,516 - 16,534	16,574 or more
02. Main Shaft (L. crank)	14,978 - 14,989	14,938 or less
(Start)	15,959 - 19,98	19,919 or less
(4th/5th)	15,959 - 19,98	19,919 or less
03. Counter (R. crank)	14,966 - 14,989	14,938 or less
Shaft O.D.(L. crank)	21,959 - 21,98	19,919 or less
(1st gear)	16,466 - 16,484	16,416 or less
(2nd gear)	21,959 - 21,98	21,919 or less
(3rd gear)	19,959 - 19,98	19,919 or less

<CRANKSHAFT>

ITEMS	ESTÁNDAR (MM)	SERVICE LIMIT (MM)
01. Connecting rod big end clearance	0,1 - 0,25 0 - 0,008	0,8 or more 0,005 or more
02. Connection rod big end radial	0,03	0,1

CAUTION

1. DURING DISASSEMBLY CRANKCASE, DO NOT SEPARATE THE CRANKCASE HALVES WITH AN IRON HAMMER.
2. AFTER SEPARATION, BE CAREFUL NOT TO DAMAGE THE RIGHT AND LEFT CRANKCASE MATING SURFACES TO AVOID OIL LEAKAGE.
3. BE SURE TO REPLACE NE GASKET DURING REASSEMBLY.
4. AFTER TRANSMISSION SYSTEM DISASSEMBLY, MAKE SURE THAT THE GEAR SHIFTING OPERATION IS NORMAL BEFORE REASSEMBLY.
5. APPLY ENGINE OIL TO THE TRANSMISSION SYSTEM AND CRANKSHAFT.
6. SPECIAL TOOLS: (1) BEARING REMOVER; (2) BEARING REMOVER BLOCK; (3). UNIVERSAL BEARING PULLER.

ENGINE DETAILS

NOTE

PROBLEMS SHOOTING

<Q-A> Excessive engine noise?

- worn main shaft journal bearing, or worn crankshaft pin bearing
- worn transmission system bearing

<Q-A> Transmission gear tripping?

- worn gear teeth, or bent transmission fork
- damaged gear shift cam stopper

<Q-A> Hard shifting?

- clutch improperly adjusted
- bent or damaged transmission fork, or bent gear shift spindle
- damaged transmission drum grooves

4-8-1. Crankcase removal

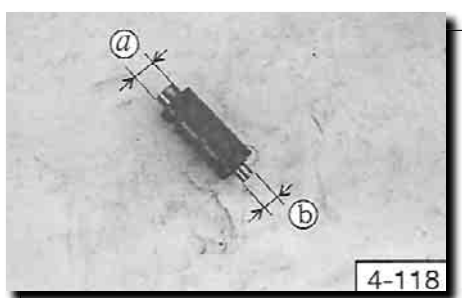
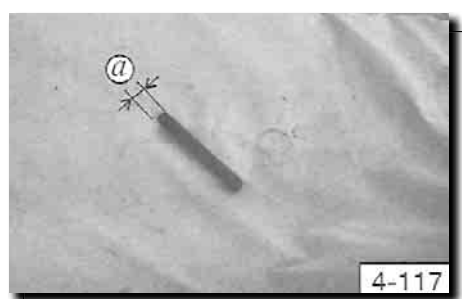
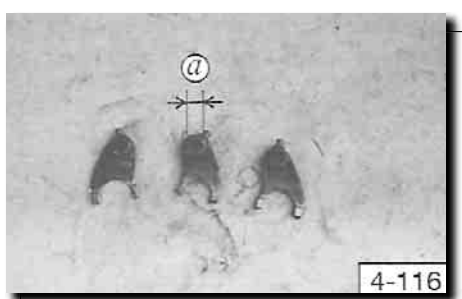
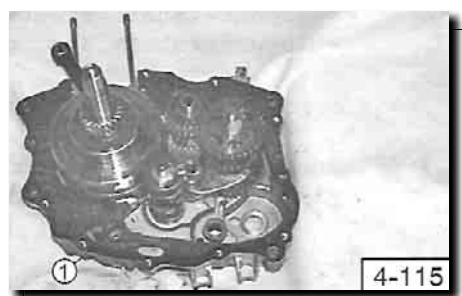
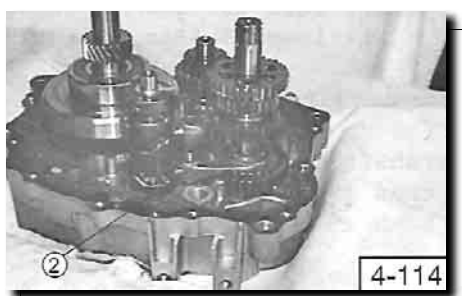
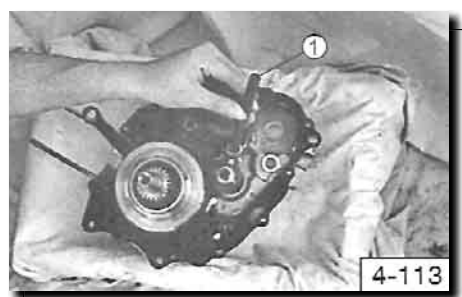
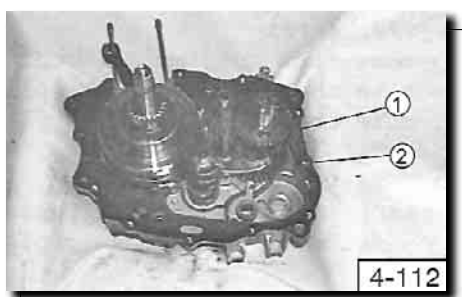
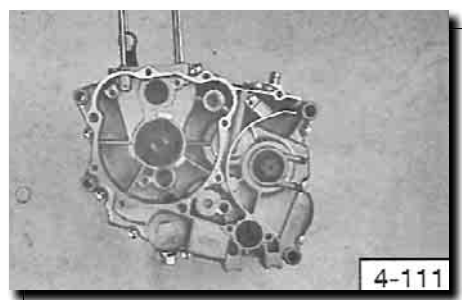
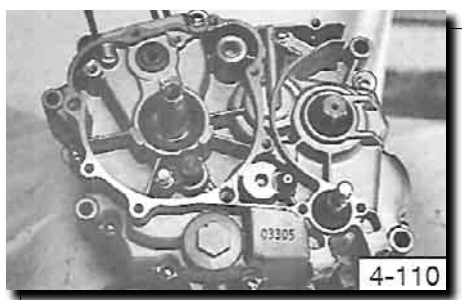
01. cylinder head removal -- refer to pare 4-4
02. cylinder/piston removal -- refer to part 4-5
03. starter motor/generator/L crankcase/.. -- refer 10 pare 4-6
04. clutch/gear shift mechanism -- refer to part: 4-7
05. remove the 8 L crankcase bolts Fig. 4-110
06. use the plastic hammer to sperate L and R crankcase halves, be sure do not use the driver pry the crankcase that will damage the mating surfaces Fig. 4-222
07. remove the gasket (1) and dowel pins (2), be sure don't lose the gear shift spindle washer Fig. 4-222

4-8-2. Transmission system removal and inspection

01. remove the transmission fork shaft and transmission forks (2) Fig. 4-113, 4-114
02. remove the transmission drum (1) Fig. 4-115
03. inspect each transmission fork for bending or damage Fig. 4-116
04. measure each transmission fork claw thickness.
 - * service limit: less than 4.43mm -- replace
05. measure each transmission fork shaft hole I.D. (a) Fig. 4-116
 - * service limit: more than 12.058mm -- replace
06. check the transmission fork shaft for bending or damage
07. measure each transmission fork shaft O.D.(a) Fig. 4-117
 - * service limit: less than 11.936mm -- replace
08. check the transmission drum for scratches or poor lubrication
- 09 - check the transmission drum groove for damage
10. check the bearing for excessive free play
11. measure the transmission drum O.D. Fig. 4-117
 - * service limit L: less than 19.926mm(a) -- replace
 - R: less than 20.919mm(b) -- replace
12. check the transmission drum and fork shaft holes in the L and R crankcase halves for wear or damage.



ENGINE DETAILS



ENGINE DETAILS

4-8-3. Transmission gears/crankshaft removal

01. remove the transmission main-shaft and counter-shaft from L crankcase, when removing gears must remove as a set base Fig. 4-119

02. remove crankshaft and disassemble main shaft & counter-shaft

4-8-4. Gear/shaft collar inspection

01. check each gear and teeth for any wear and damage -- replace

02. measure each gear I.D. Fig. 4-120, 4-121

- | | |
|-----------------------------|-------------------------------|
| * service limit(main 5th.): | more than 20.61mm -- replace |
| * (counter 3rd.): | more than 16.574mm -- replace |
| * (counter 2nd.): | more than 22.081mm -- replace |

03. measure each shaft collar I.D. Fig. 4-120, 4-121

- | | |
|-------------------------------------|-------------------------|
| * (countershaft starter idle gear): | more 16.85mm -- replace |
| * (countershaft 1st. gear): | more 19.00mm -- replace |

04. measure each shaft collar O.D. Fig. 4-122

- | | |
|-------------------------------------|-------------------------|
| * (countershaft starter idle gear): | less 19.55mm -- replace |
| * (countershaft 1st. gear): | less 19.55mm -- rep-ace |

05. check the main shaft and countershaft for any wear and damage

06, measure main shaft and countershaft O.D. Fig. 4-123, 4-124

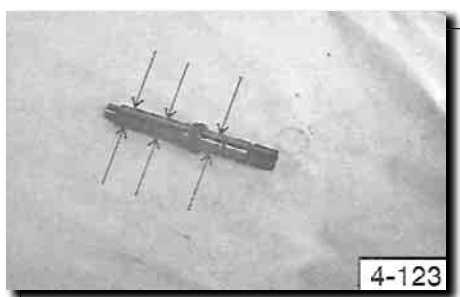
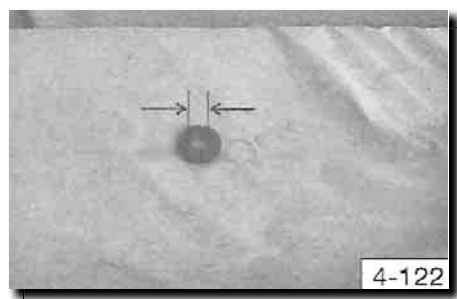
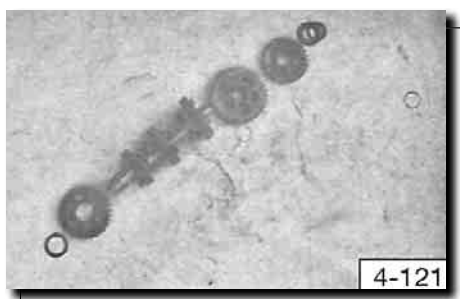
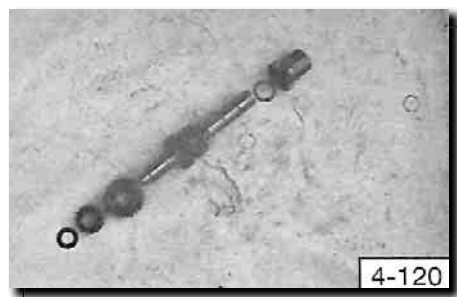
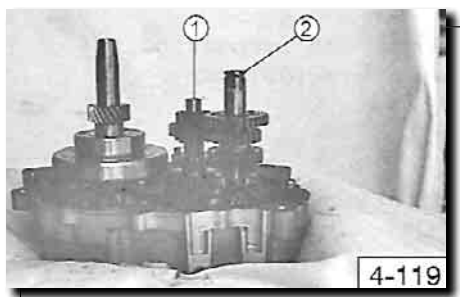
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|-------------------------|-------------------------------|
| * Main shaft (starter): | less than 19.919mm -- rep-ace |
| (5th.) | less than 19.919mm -- replace |

* Countershaft(starter): less than 16.05mm -- replace

- | | |
|---------|--------------------------------|
| (1st.): | less than 16.416mm -- replace |
| (2nd.): | less than 21.919mm. -- replace |
| (3rd.): | less than 19.919mm -- replace |



ENGINE DETAILS



ENGINE DETAILS

4-8-5. <OPTION> Starter spindle removal and inspection

- this section is only for engine with kick (OPTION)

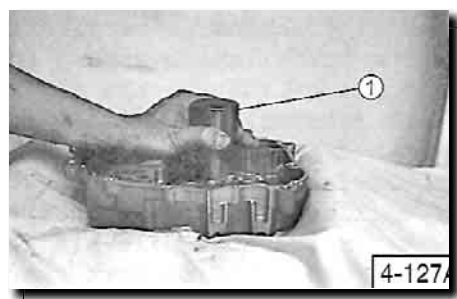
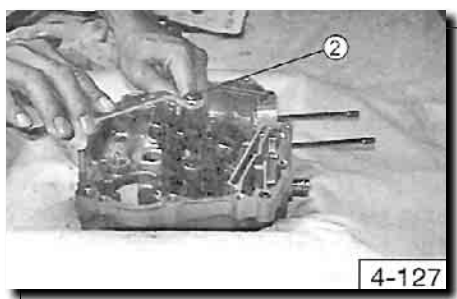
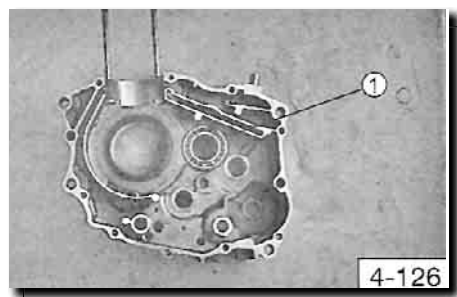
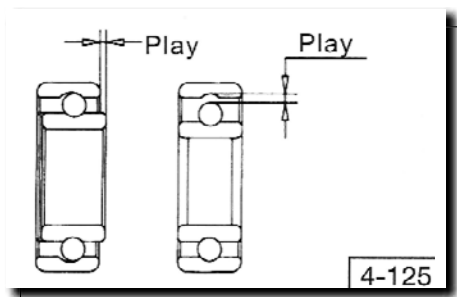
01. disassemble the starter spindle
02. check starter ratchet and pinion for any wear or damage
03. check starter spindle return spring any deformation/damage
04. measure the starter ratchet I.D. (OPTION)
 - * service limit: more than 20.35mm -- replace
05. check the starter spindle for any wear or damage
06. measure the starter spindle O.D.(OPTION)
 - * service limit (A): less than 15.95mm -- replace
 - (B): less than 19.95mm -- replace
 - (C): less than 12.85mm -- replace

4-8-6. Bearing inspection and replacement

01. check the main shaft and countershaft bearings for smooth tuning. Fig. 4-125
- 02 - replace the bearings with new ones if bearing do not turn smoothly, quietly, or if they fit loosely in the case.
03. if the countershaft needle bearing in the L crankcase is nosy or has excessive free play, be sure to change it.
04. remove the main shaft and countershaft bearings (1) from L & R crankcase halves (2). Fig. 4-126, 4-127
05. drive in new bearing using a bearing driver under squarely (1). Fig. 4-127A
06. apply engine oil to the bearings before installation,



ENGINE DETAILS



ENGINE DETAILS

4-8.7. Crankshaft inspection Fig. 4 128, 4-129, 4 130, 4-131

01. measure the connecting rod big end side clearance
* service limit.: more than 0.80mm - replace
02. measure the connecting rod big end radial clearance at points at right angles to the shaft.
* service limit: more than 0.05mm -- replace
- 03 . measure (.he crankshaft run-out
* service limit: more than 0.05mm - - replace
- 04 check crankcase bearings (1) for noise or excessive free play.

4- 8-8 . Crankshaft installation

- The installation should follow the reverse order of removal (option) install the starter spindle onto the right crankcase

- 01 . assemble the main shaft and countershaft onto right crankcase.
02. install. the transmission drum (1) Fig. 4-132
03. install, the R transmission fork to countershaft 4th. gear.
04. raise the guild pin (2) into the transmission drum groove.
05. transmission fork can be installed more easily by tuning on neutral, light cooper piece on transmission drum toward cylinder.
06. install the mid. transmission fork to main shaft 3rd. gear
07. install the fork guide pin into the transmission drum groove
08. install the L transmission fork to the countershaft 5th. gear
09. install the fork guide pin into the transmission drum. groove.
10. install the transmission fork shaft.

CAUTION

MAKE SURE THE MAIN AND COUNTERSHAFT ARE PARALLEL

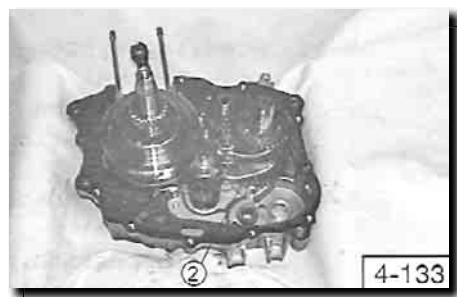
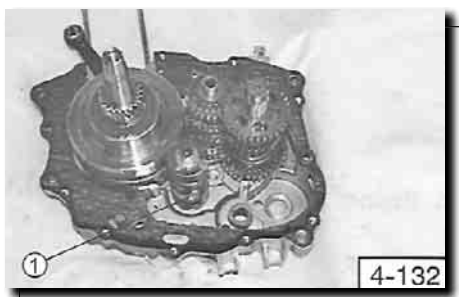
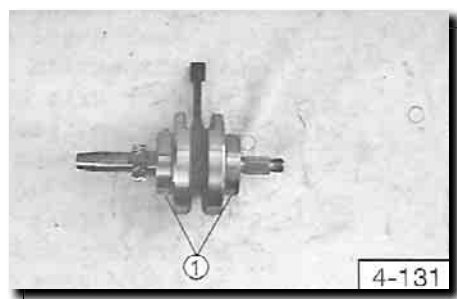
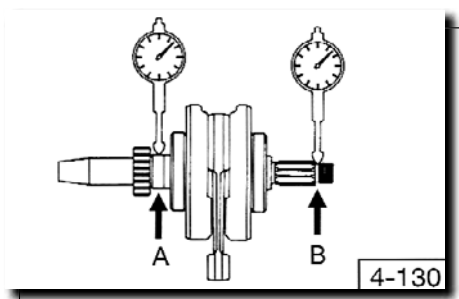
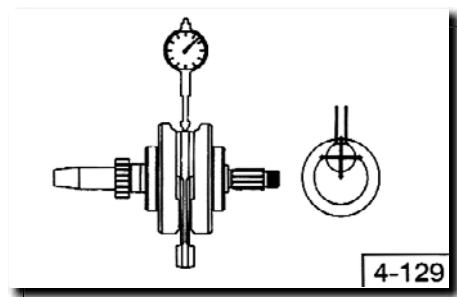
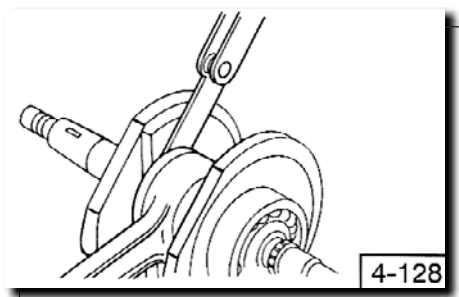
4-8 9. Crankcase installation

- The installation should follow the reverse order of removal.

- 01 . install the crankcase squarely and do not strike it in force by installing the L crankcase, aligning the starter spindle with the L crankcase hole.
02. install the dowel pins and gasket, be sure the dowel pins and gasket do not. till. to avoid oil leakage.
03. tighten 8 bolts diagonally and evenly
* torque: 0.8 - 1.2 kg m
04. install the rest all parts
 - * starter motor/generator -- refer to part 4-6
 - * clutch/gear shift -- refer to part 4-7
 - * cylinder/piston -- refer to part: 4-5
 - * cylinder head -- refer to part 4-4



ENGINE DETAILS



CHASSIS DETAILS

PART 5. CHASSIS DETAILS

5-01. FRONT WHEEL/FRONT BRAKE

1. Removal
2. Inspection
3. Wheel bearing and oil seal replacement
4. Brake shoe and brake plate inspection
5. F wheel installation

5-02. REAR WHEEL/REAR AXLE

1. Rear wheel removal
2. Inspection
3. Rear axle hub bearing and oil seals replacement
4. R wheel installation
5. R axle nuts tightening steps

5-03. REAR DISC BRAKE

1. Brake fluid change - refilling
2. Brake shoe, disc. master cylinder inspection
3. Installation brake shoe/disc/master cylinder

5-04. STEERING SYSTEM

1. Removal
2. Inspection
3. Installation

5-05. FRONT SHOCK ABSORBER AND FRONT ARM

1. Removal
2. Inspection shock absorber
3. Inspection steering knuckle
4. Inspection front arm
5. Installation

5-06. REAR SHOCK ABSORBER AND SWING-ARM

1. Removal R. shock
2. Inspection and remove the swing arm
3. Inspection R. shock
4. installation

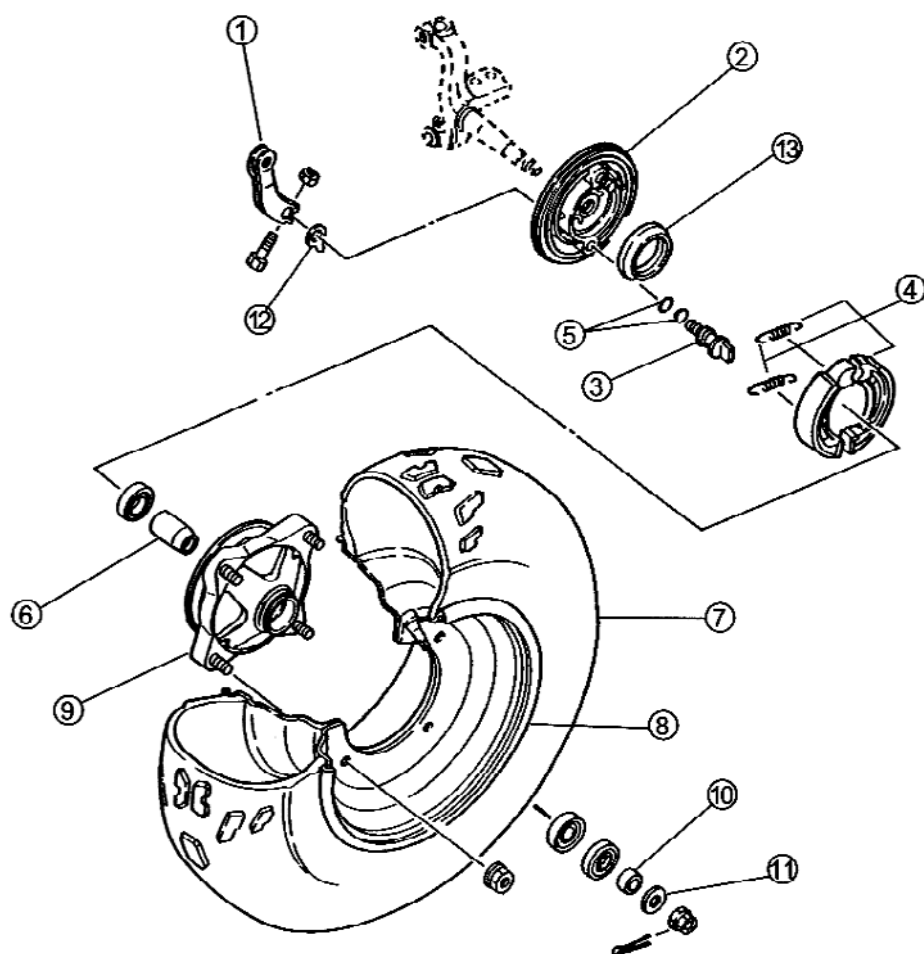
5-07. DRIVE CHAIN AND SPROCKET

1. Removal
2. Inspection
3. Driven sprocket replacement
4. Installation

CHASSIS DETAILS

5-1. FROM WHEEL AND FRONT BRAKE BRIEFING

- | | |
|----------------------|------------------------|
| (01). lever camshaft | (02). plate brake shoe |
| (03). camshaft | (04). brake shoe set |
| (05). o-ring | (06). spacer, bearing |
| (07). tire | (08). wheel |
| (09). hub | (10). collar |
| (11). washer | (12). indicator plate |
| (13). oil seal | |



CHASSIS DETAILS

5 -1. FRONT WHEEL AND FRONT BRAKE

5-1-1. Removal

01- place the ATV on a level place

02. out parking braked (1) and place a stand under frame Fig. 5-01

03. remove the front wheel nuts (1) Fig. 5-02

04. remove the cotter pin (1) Fig. 5-03

05. remove wheel hub nut (1) and washer (2) Fig. 5-04

06. remove wheel hub (3) and collar (4) Fig 5-04

07. remove adjuster (1) and pin (2) Fig. 5-05

08. remove spring (3), circlip (4), and brake cable (5) Fig. 5-05

09. remove the shoe plate (1) Fig. 5-06

10. remove the brake shoe (1) Fig. 5-07

11. remove the brake cam lever (1) Fig. 5-08

12. remove the wear indicator plate (1) Fig. 5-08

13. remove the camshaft (3). Place an aligning mark next to the punched mark on the camshaft lever before remove, that it can be reinstalled in the same position. Fig. 5-08

5-1-2. Inspection (Fig. 5-09)

I 01. check the wheel any cracks, bends, warpage -- replace

02. measure the wheel run-out -- replace Fig. 5-09

service limit:	radial (1):	2,0 mm (0,08 in)
	lateral (2):	2,0 mm (0,08 in)

WARNING

AFTER REPLACING THE TIRE, RIDE CONSERVATIVELY TO ALLOW THE TIRE TO BE RSROPERLY SEATED IN THE RIM. FAILURE TO DO SO, MAY CAUSE AN .ACCIDENT RESULTING IN ATV DAMAGE AND RIDER INJURY.

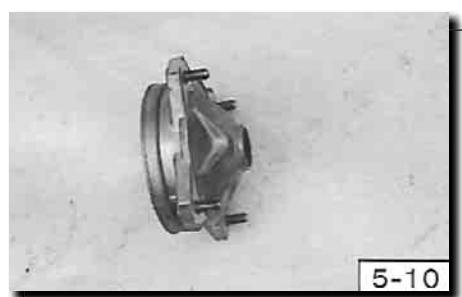
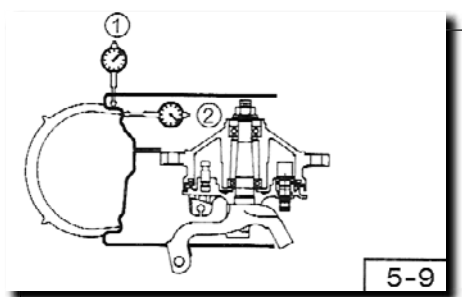
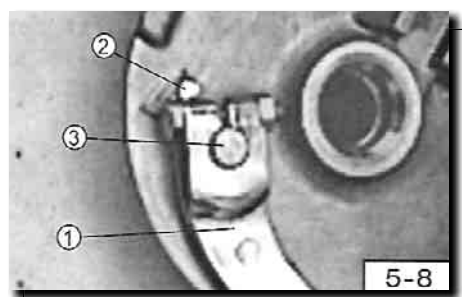
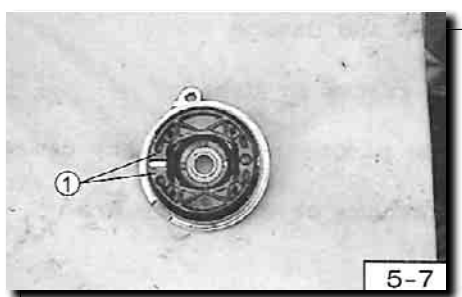
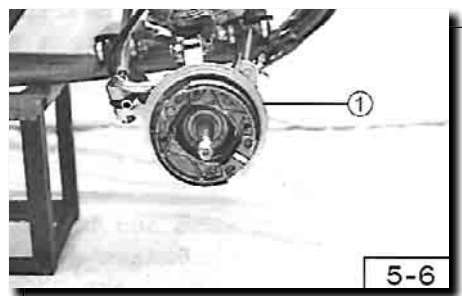
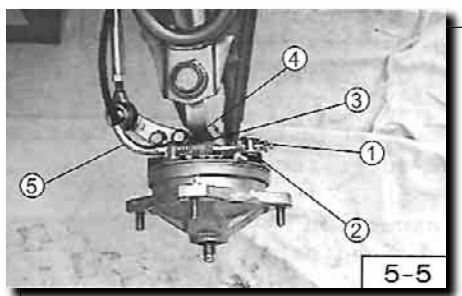
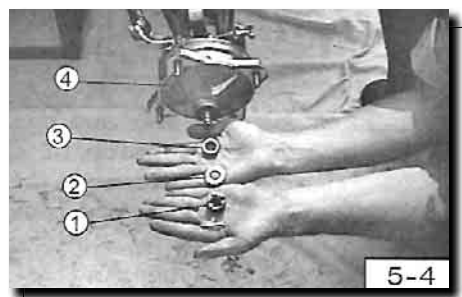
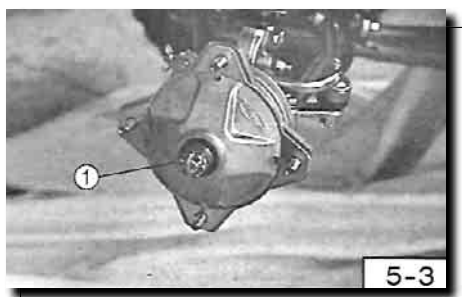
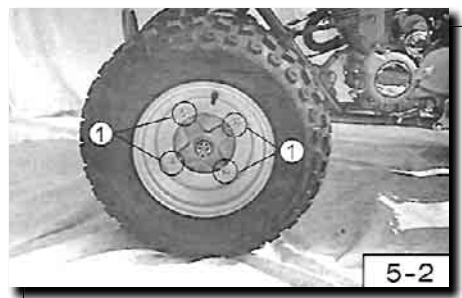
03. inspect the front wheel hub for any crack and damage -- replace Fig. 5-10

CAUTION

WHEN TWO PERSONS WORK TOGETHER, PAY ATTENTION TO THE MUTUAL WORKING SAFETY ON BOTH SIDE.



CHASSIS DETAILS



CHASSIS DETAILS

<continue 5-1-2, Inspection>

- 04. inspect the brake drum(inner face) to wipe off oil from brake drum with rag sacked in lacquer thinner or solvent. Fig. 5-11
- 05. inspect the brake drum(inner face); (a) to polish brake drum lightly on the scratches place Fig. 5-12
- 06. measure the brake drum inside diameter for any damage -- replace y service limit: more than 111mm (4.37in) -- replace
- 07. inspect bearing on. play on wheel hub or turn roughly -- replace.
- 08. inspect oil seal on any wear or damage -- replace

5-1-3. Wheel bearing and oil seal replacement

- 01. clean the outside of the wheel hub.
- 02. remove the oil seal (1) by using a flat-head screw driver (2) and place a wood block against outer edge to protect edge. Fig. 5-13
- 03. remove the bearing (3) using a general bearing puller Fig. 5-12.
- 04. install the new bearing and oil seal by revering the previous steps. It may use a socket (4) matches the outside diameter of the race of the bearing and oil seal. Fig. 5-14

CAUTION

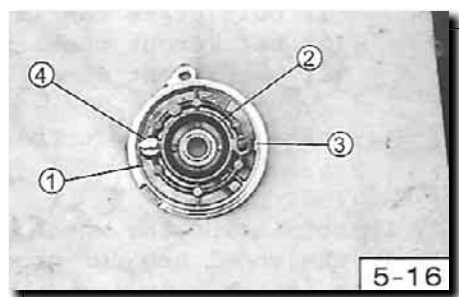
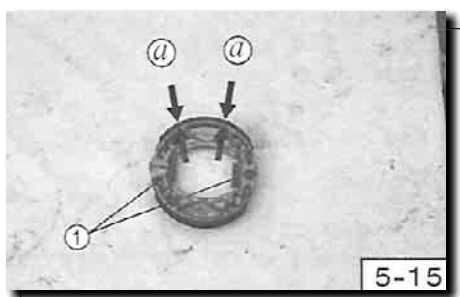
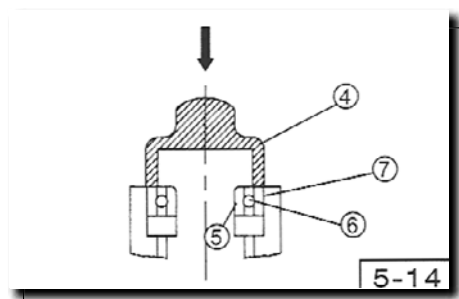
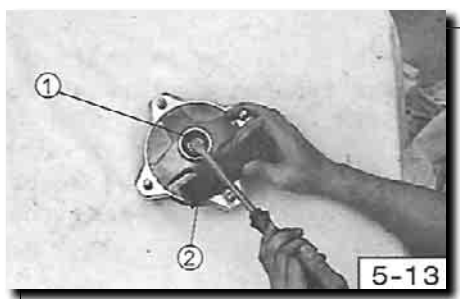
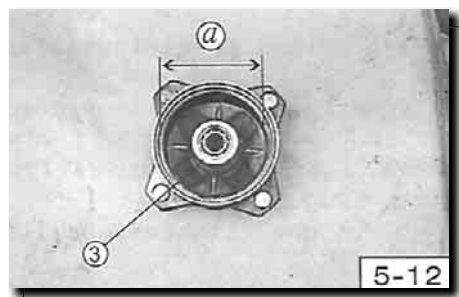
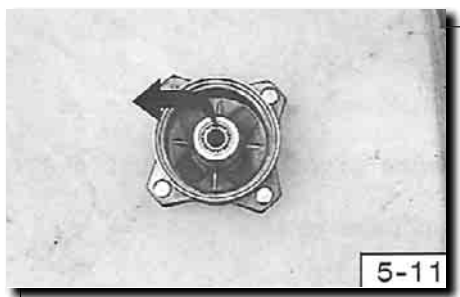
DO NOT STRIKE THE CENTER RACE (5) OR BALLS (6) OF BEARING. CONTACT SHOULD BE MADE ONLY WITH THE OUTER RACE (7) FIG. 5-14

5-1-4. Brake shoe and brake plate inspection

- 01. sand with coarse and-paper on glazed parts Fig. 5-15.
- 02. measure the brake shoe thickness (a) Fig. 5-15 - service limit: less than 2.0mm (0.08 in) -- replace
- 03. check the spring (1) for any ware and damage -- replace Fig. 5-15
- 04. check brake shoe plate for any cracks or damage -- replace Fig. 5-16.
- 05. check oil seal (2) and brake shoe pivot (3) pin for any damage -- replace Fig. 5-16
- 06. check camshaft hole (4) for scratches or excessive wear -- replace Fig. 5-16.



CHASSIS DETAILS



CHASSIS DETAILS

5-1-5. Front wheel installation

- Reverse the "5-1-1" procedure and follows the lubricate as

01. lubricate brake cam (1), brake shoe pivot pin (2) oil seal (3) - Fig. 5-17.

* use: lightweight lithium-soap base grease

02. lubricate oil seal lips and bearing

* use: lightweight lithium-soap base grease (lightly)

03. installing the wear indicator plate (1) to the camshaft (2) align the projection (3) on the wear indicator plate (4) tied the slot on the camshaft. Fig. 5-18.

04. install brake shoe plate and be sure the boss on the knuckle correctly engages with the locating slot on the brake shoe plate. Fig. 5-19.

05. on Fig. 5-20, tighten

(1) bolt	(brake cam lever)	* torque: 0.9 kg-m
----------	-------------------	--------------------

(2) nut	(front: wheel hub)	* torque: 7.0 kg-m
---------	--------------------	--------------------

(3) nuts	(front wheel)	* torque: 4.5 kg-m
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06. install the new cotter pin (1) Fig. 5-21

CAUTION

1. DO NOT LOOSEN THE WHEEL HUB AFTER TORQUE TIGHTENING.

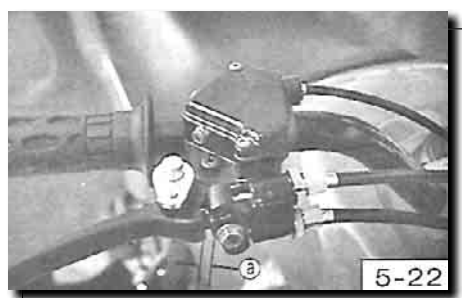
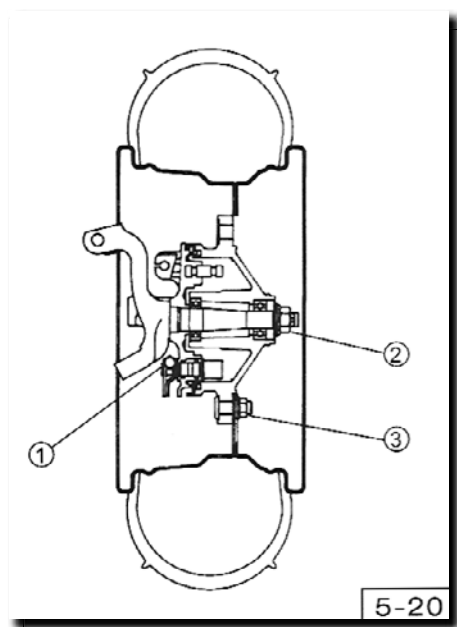
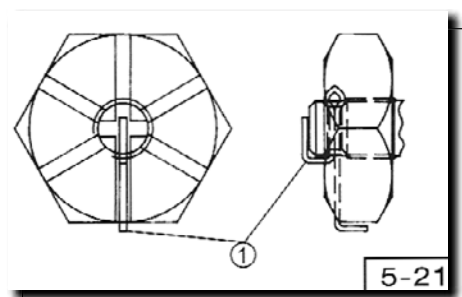
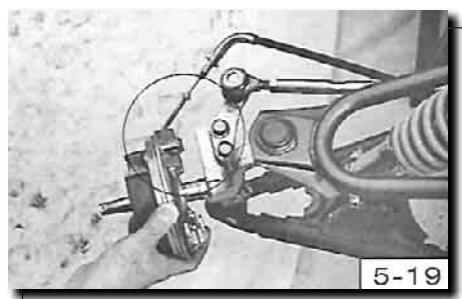
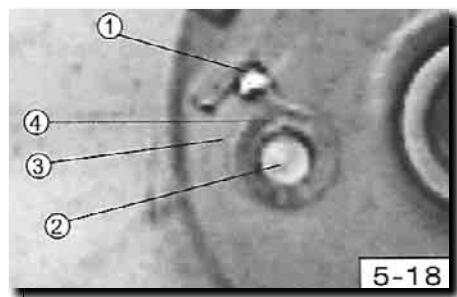
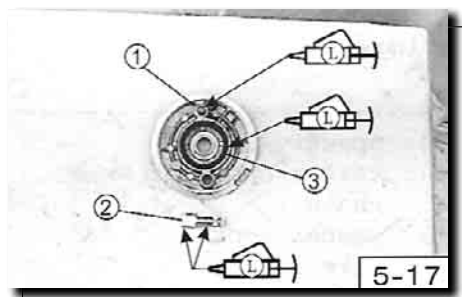
2. IF THE WHEEL HUB NUT GROOVE IS NOT ALIGNED WITH THE COTTER PIN HOLE, ALIGN GROOVE WITH THE HOLE BY TIGHTENING UP THE WHEEL HUB NUT.

07. adjust front brake cable free play (a)

*- refer 10 part 3-22 Fig. 5-22



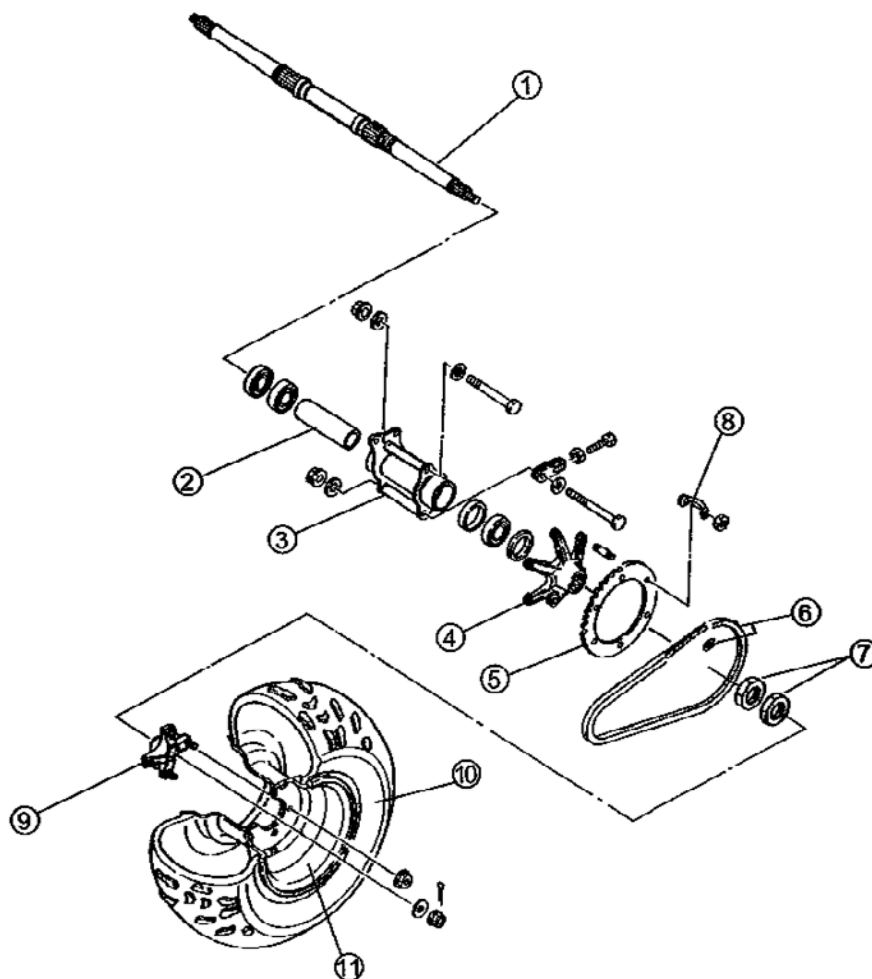
CHASSIS DETAILS



CHASSIS DETAILS

5-2. REAR WHEEL AND REAR AXLE BRIEFING

- | | | | |
|-------|---------------------|-------|----------------------|
| (01). | axle | (02). | spacer |
| (03). | hub | (04). | collar sprocket axle |
| (05). | sprocket driven 40T | (06). | chain |
| (07). | nut hexagon | (08). | washer lock |
| (09). | collar wheel | (10). | tire |
| (11). | wheel | | |

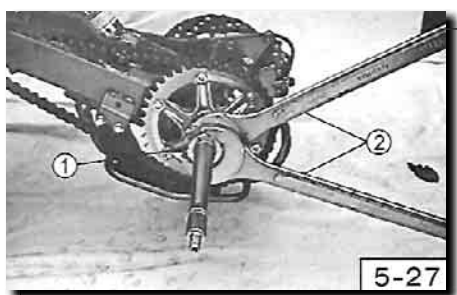
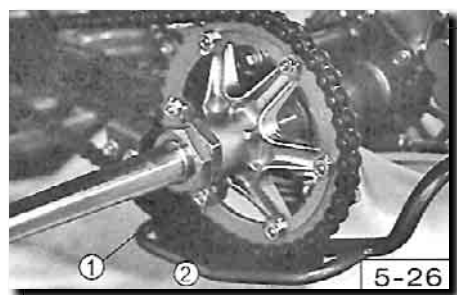
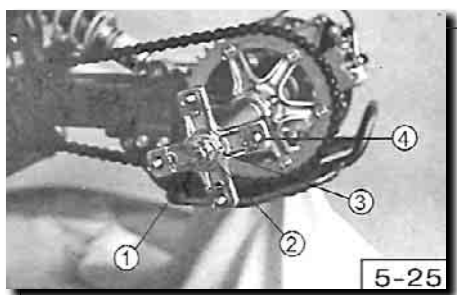
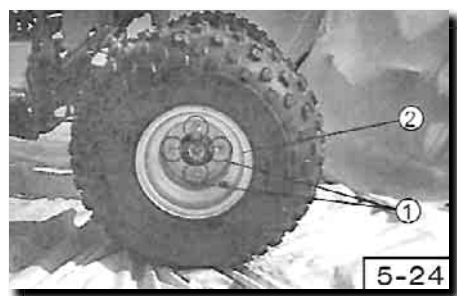
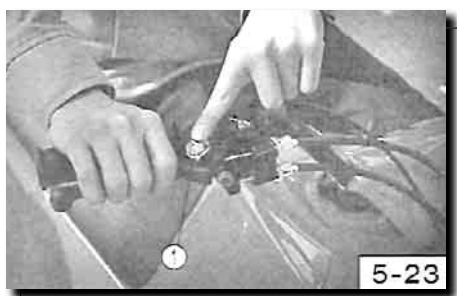


CHASSIS DETAILS

5-2. REAR WHEEL AND REAR AXLE

5-2-1. Rear wheel removal

01. place the ATV on a level place
02. put the parking brake on (1) Fig. 5-23
03. loosen rear wheel nut (1) Fig. 5-24
04. elevate the rear wheel by placing a stand under frame Fig. 5-24
05. remove rear wheels (2) Fig. 5-24
06. remove cotter pin (1), wheel hub nut (2) Fig. 5-25
07. remove plate washer (3). wheel hub (4) Fig. 5-25
08. loosen rear axle outer nut (1) Fig. 5-26
09. loosen rear axle inner nut (2) Fig. 5-26
10. Tighten rear axle inner nut (1) of 1/8 clockwise turn (2) Fig. 5-27



CHASSIS DETAILS

<continue 5-2-1. Rear wheel removal>

11. remove under guard (1) Fig. 5-28
12. loosen rear axle hub upper nut (2) Fig. 5-28
13. loosen rear axle hub lower nut (3) Fig. 5-28
14. loosen chain tensioner adjuster (4) Fig. 5-28
15. remove chain assembly (1) Fig. 5-29
16. remove rear axle outer nut (1) Fig. 5-30
17. remove rear axle inner nut (2) Fig. 5-30
18. remove the drive sprocket hub (3) Fig. 5-30
19. release the parking brake Fig. 5-31
20. remove brake caliper (1) be sure do not depress parking brake lever or brake pedal when the caliper is removed Fig. 5-31
21. remove the rear axle Fig. 5-32, Fig. 5-32a, Fig. 5-32b

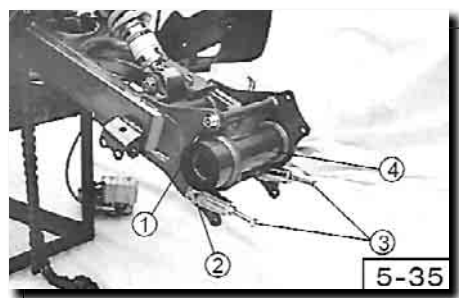
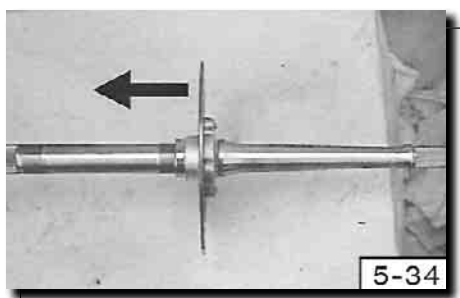
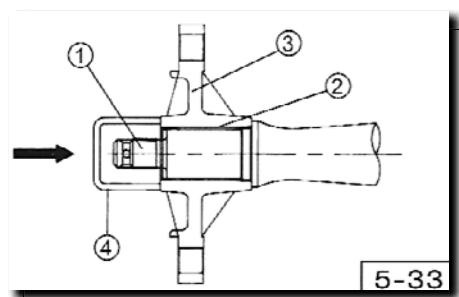
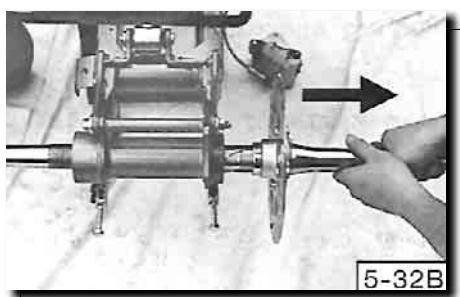
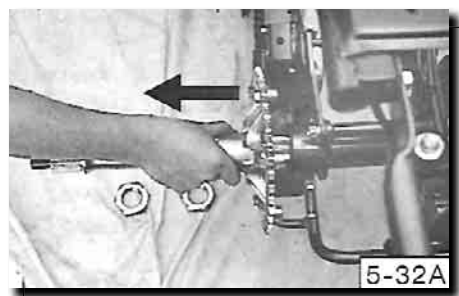
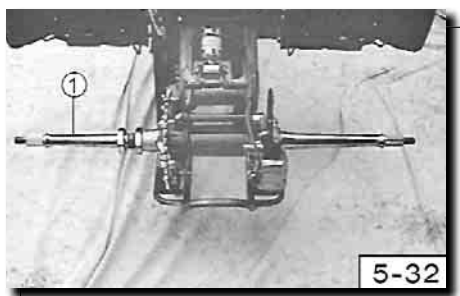
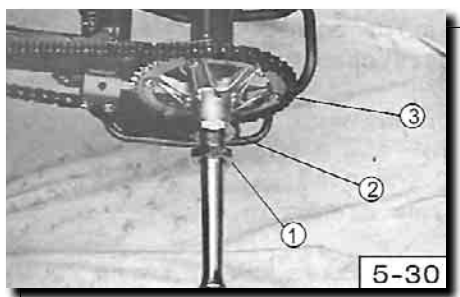
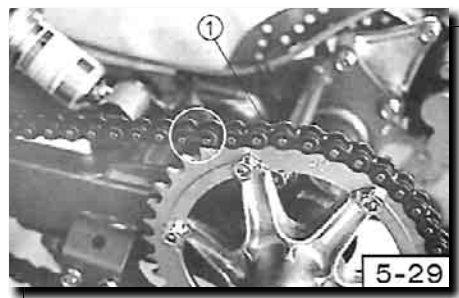
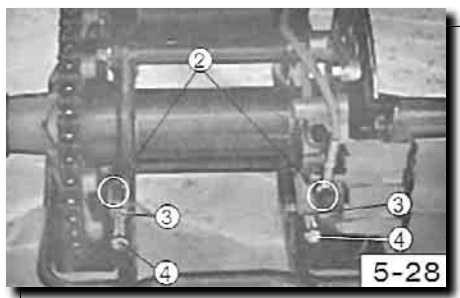
CAUTION

1. NEVER DIRECTLY TAP THE AXLE END WITH A HAMMER, WHICH WILL CAUSE DAMAGE TO THE AXLES THREAD (1) AND SPLINE (2). FIG. 5-33
2. INSTALL THE WHEEL BOSS (3) AND SUITABLE SOCKET (4) ON THE AXLES END TO PROTECT THE THREAD AND SPLINE FROM DAMAGE. FIG. 5-33

21. take out wire clips and disc hub, be sure do not damage disc hub during removal. Fig. 5-34
22. remove the rear axle hub upper bolt (1) Fig. 5-35
23. remove the rear axle hub lower bolt (2) Fig. 5-35
24. remove the chain tensioner assembly (3) Fig. 5-35
25. remove rear axle hub (4) Fig. 5-35



CHASSIS DETAILS



CHASSIS DETAILS

5-2-2. Inspection

01. inspect wheel -- refer to part 3-22
02. measure wheel runout -- refer to pare 3-23
03. check wheel hub (1) for any crack or damage -- replace Fig. 5-36
04. check wheel hub Splines (2) for any wear or damage -- replace Fig. 5-36
05. check disc hub (1) for any wear or damage -- replace Fig. 5-37
06. inspect sprocket hub (1) for any crack/damage -- replace Fig. 5-38
07. inspect splines (2) for any wear/damage -- replace Fig. 5-38
08. check rear axles (1) for any scratched or damage -- replace Fig. 5-39
09. check splines (2) or threads for any wear or damage -- replace
10. measure rear axle runout (a) for any damage -- replace Fig. 5-39
* service limit: 1.5mm(0.06 in)
11. inspect rear axle hub (1) for any cracks or bend -- replace Fig. 5-40
12. inspect bearing (1) for any play in axles hub or turns roughly -- replace. Fig. 5-41
13. inspect oil seats (2) for any wear or damage -- replace

5-2-3. Rear axle hub bearing and oil seal replacement steps

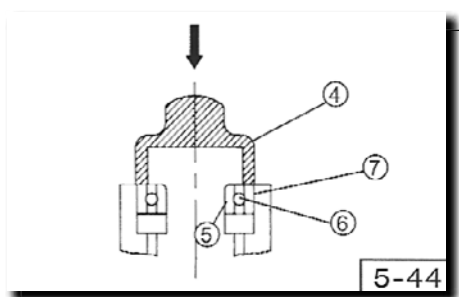
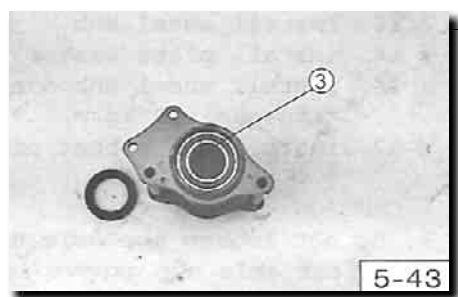
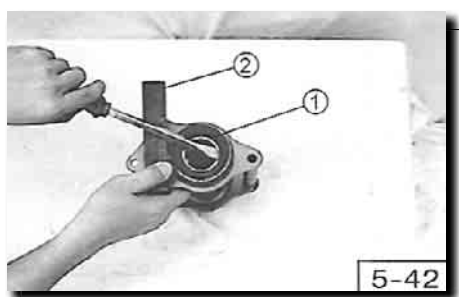
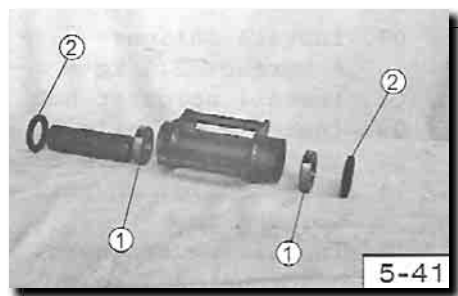
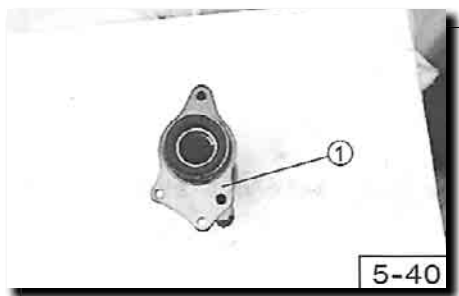
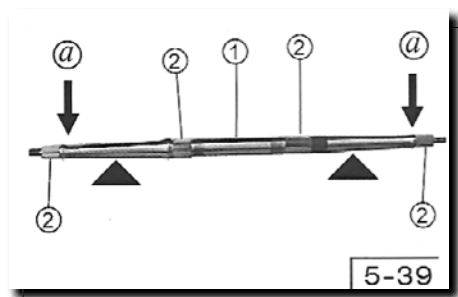
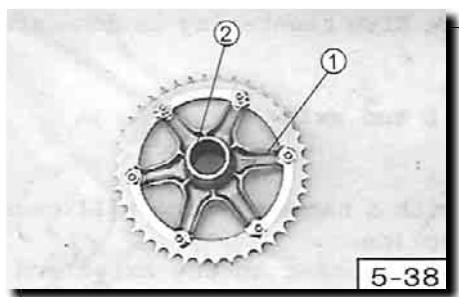
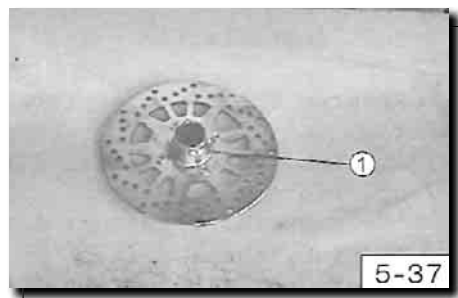
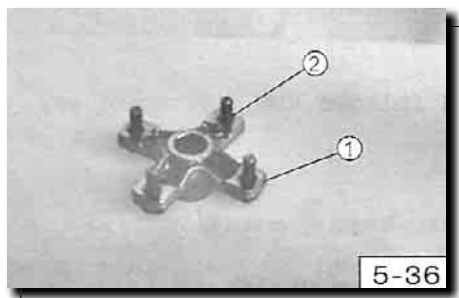
01. clean the outside of the rear axle
02. remove the oil seal (1) by using a flat head screw driver and place a wood block (2) against the outer edge to protect this edge Fig. 5-42
03. remove the bearing (3) using a general bearing puller Fig. 5-43
04. install the new bearings and oils seal by reversing the previous step. It may use a socket (4) matches the outside diameter of the race of the bearing and oil seal. Fig-. 5-44

CAUTION - Fig. 5-44

DO NOT STRIKE THE CENTER RACE (5) OR BALLS (6) OF THE BEARING. CONTACT SHOULD BE MADE ONLY WITH THE OUTER RACE (7).



CHASSIS DETAILS



CHASSIS DETAILS

5-2-4. Installation

- Reverse the "5-1-1" procedure and follows the lubricate as;

01. lubricate oil seal lips

02. lubricate bearing

* use: lightweight lithium-soap base grease (lightly)

03. lubricate splines

* use: lightweight lithium-soap base grease

04. install rear axles hub. On this step, the rear axles should not be tighten completely. The firm tightening is done after the chain slack adjustment.

05. install disc hub to rear axle

06. install rear axle by top the L end axle

CAUTION

1. NEVER DIRECTLY TAP THE AXLE END WITH A HAMMER, WHICH WILL CAUSES DAMAGE TO THE AXLES THREAD AND SPLINE.
2. INSTALL THE WHEEL BOSS AND SUITABLE SOCKET ON THE AXLES END TO PROTECT THE THREAD AND SPLINE FROM DAMAGE.

07. install caliper

* torque: 2.8 kg-m

08. install sprocket hub

09. install rear axle inner nut

10. install rear axle outer nut

11. drive chain. On this step, the rear axle nut should not be screwed on.

12. install under guard

* torque: 2.3 kg-m

13. apply the parking brake

14. install wheel hub

15. install plate washer

16. install wheel hub nut

* torque: 12 kg-m

17. install new cotter pin

CAUTION

1. DO NOT LOOSEN THE AXLE NUT AFTER TORQUE TIGHTENING.
2. IF THE AXLE NUT GROOVE IS NOT ALIGNED WITH THE COTTER PIN HOLE, ALIGN GROOVE WITH THE HOLE BY TIGHTENING UP THE AXLE NUT.

CHASIS DETAILS

< continue 5-2-4. Installation >

- Reverse the "5-1-1" procedure and follows the lubricate as;

18. tighten rear axle inner nut (1)

* torque: 1st. tighten 5.0 kg-m; final tighten 24 kg-m tighten rear axle outer nut (2)

* torque: 19 kg-m

NOTE

REAR AXLES NUT TIGHTEN STEPS -- RARER 5-2-5

19. install rear wheel

20. install rear wheel nuts under temporary tighten

21. remove the stand and set the ATV on ground securely

22. tighten rear wheel nut

* torque: 4.5 kg-m

23. replace the parking brake

24. adjust drive chain slack -- refer to part 3-25

* drive chain slack: 30-40mmd.18-1.57 in)

25. tighten rear axle hub upper nut

* torque: 5.0 kg-m

26. tighten rear axle hub lower nut

* torque: 5.0 kg-m

5-2-5. Rear axles nut tighten steps:

01. apply the bone (or locking agent) on rear axle nuts threads.

02. (1st.) tighten the inner rear axles nut on 5.0 kg-m

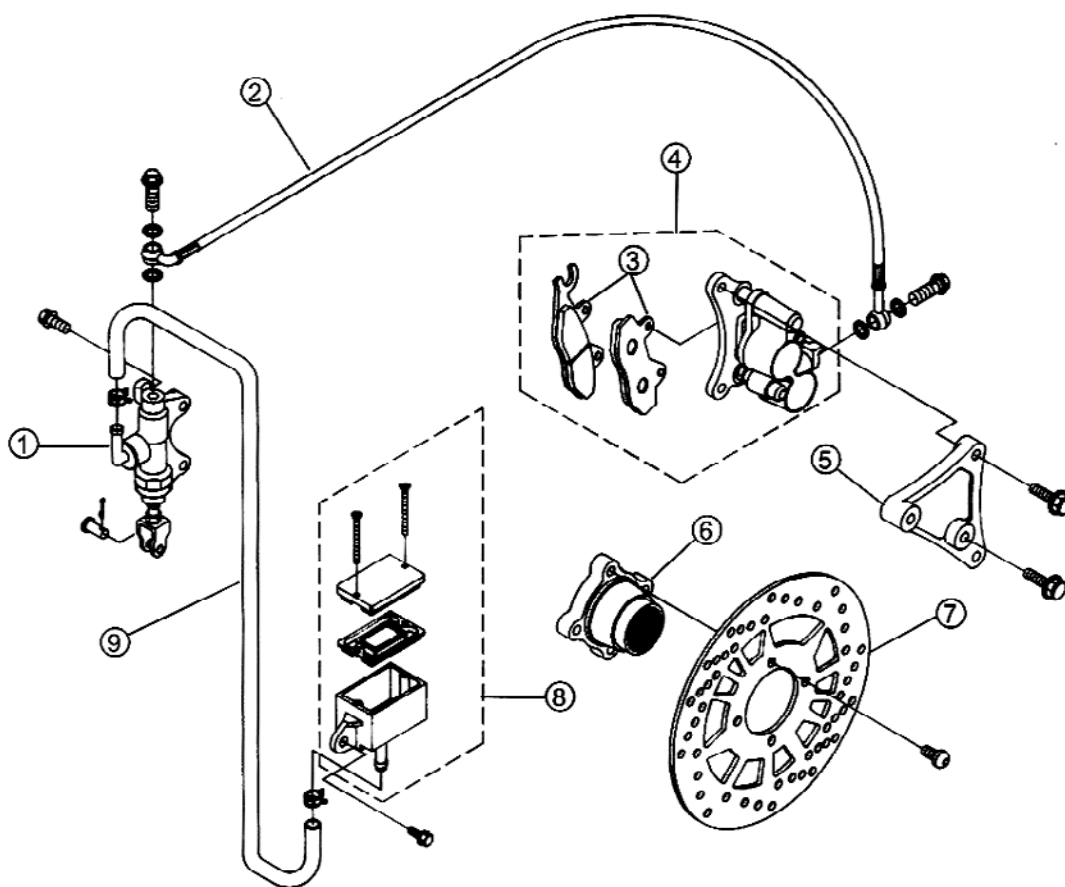
03. (2nd.) tighten the outer rear axles nut while holding the inner rear axle nut on 19 kg-m.

04. (3rd.) loosen the inner rear axles nut while holding the outer rear axle nut on 24 kg-m.

CHASSIS DETAILS

5-3. REAR DISC BRAKE BRIEFING

- | | | | |
|-------|-------------------|-------|-----------------------|
| (01). | master cylinder | (02). | brake hose |
| (03). | brake pad caliper | (04). | caliper |
| (05). | bracket caliper | (06). | bracket disc |
| (07). | disc | (08). | brake fluid reservoir |
| (09). | hose | | |



CHASSIS DETAILS

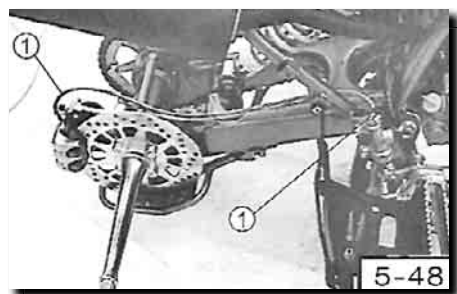
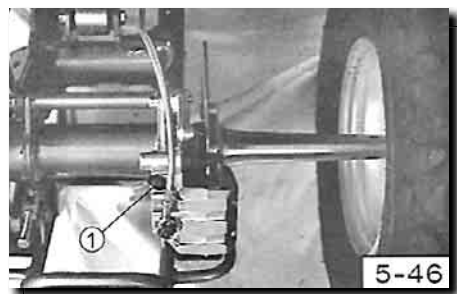
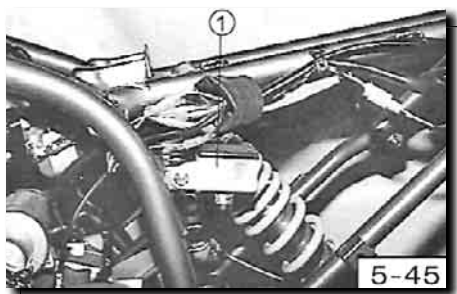
5-3. REAR DISC BRAKE

5-3-1. Brake fluid change - refilling

01. remove the brake fluid tank cap (1), be sure to put a towel to prevent the brake fluid dropping Fig. 5-45
02. connect with a transparent hose on caliper bleed valve and loosen the lock nut (1) to draw the existing brake fluid out. Fig. 5-46
03. fill the new brake fluid into tank. Be sure no air on hose (1) Fig. 5-47
04. use only recommended brake fluid DOT # 3 or DOT # 4 only. Fig. 5-48
05. after re-fill brake fluid, place the brake lever several times and loosen the bleed valve lock nut to bleed air out.

CAUTION

1. NEVER ALLOW FOREIGN MATERIALS (DIRT, WATER, ...) ENTER THE BRAKE FLUID RESERVOIR.
2. BRAKE FLUID CAN DAMAGE ANY PAINTING AND PLASTIC.



CHASSIS DETAILS

5-3.2. Brake shoe (lining) , disc, master cylinder inspection

01. remove the brake shoe (lining) from caliper Fig. 5-49
02. inspect the brake shoe (lining) for any wear or damage -- replace. Fig. 5-50
03. be sure to replace the whole set of brake shoe (lining) (1) Fig. 5-51
04. remove the rear disc
05. measure the disc thickness (a) and run-out Fig. 5-52
* service limit: 3.0mm
05. replace the disc for any wear or damage
06. take out the cotter pin (1) and remove master cylinder Fig. 5-53, 5-54
07. replace the master cylinder for any wear or damage

5-3 3. Installation brake shoe/disc/master cylinder

- Reverse the removal procedure.

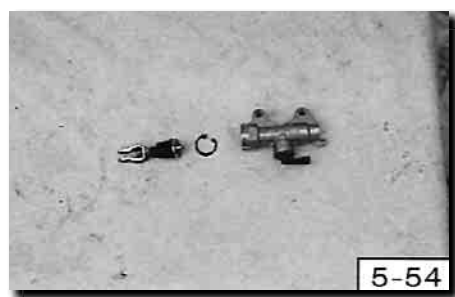
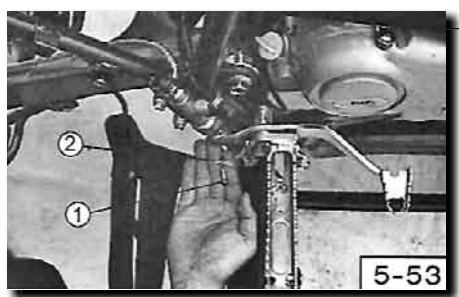
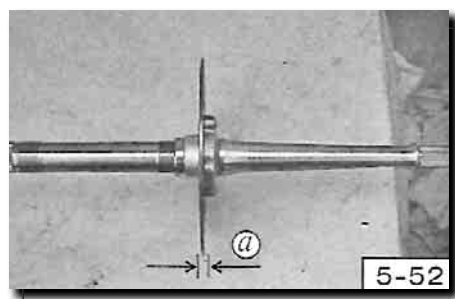
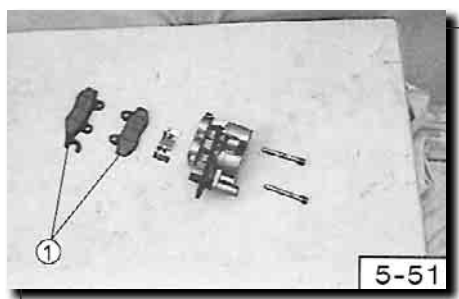
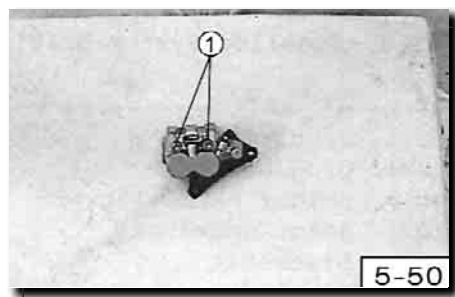
01. install the brake shoe into caliper
02. install the master cylinder
03. install disc to brake hub
* torque: 2.8 kg-m
04. lubricate the rear axles splines
* lightweight lithium-soap base grease
- 0 5. Install under guard
* torque: 2.3 kg-m
06. install the caliper, new gasket, cover
07. install wheel hub
08. install the R wheel
09. adjust the parking brake under apply the rear brake repeatedly by pressing on the rear brake pedal until pedal strokes become constant. Be sure that the adjust bolt of adjuster unit is in contact with the pad.

WARNING

AFTER THE ADJUSTMENT OR CHANGE IS PERFORMED, BLOCK THE REAR OF ATV OFF THE GROUND, AND SPIN THE REAR WHEEL TO MAKE SURE THERE IS NO BRAKE DRAG. IF ANY BRAKE DRAG SHOWS UP, PERFORM THE ABOVE PROCESS.



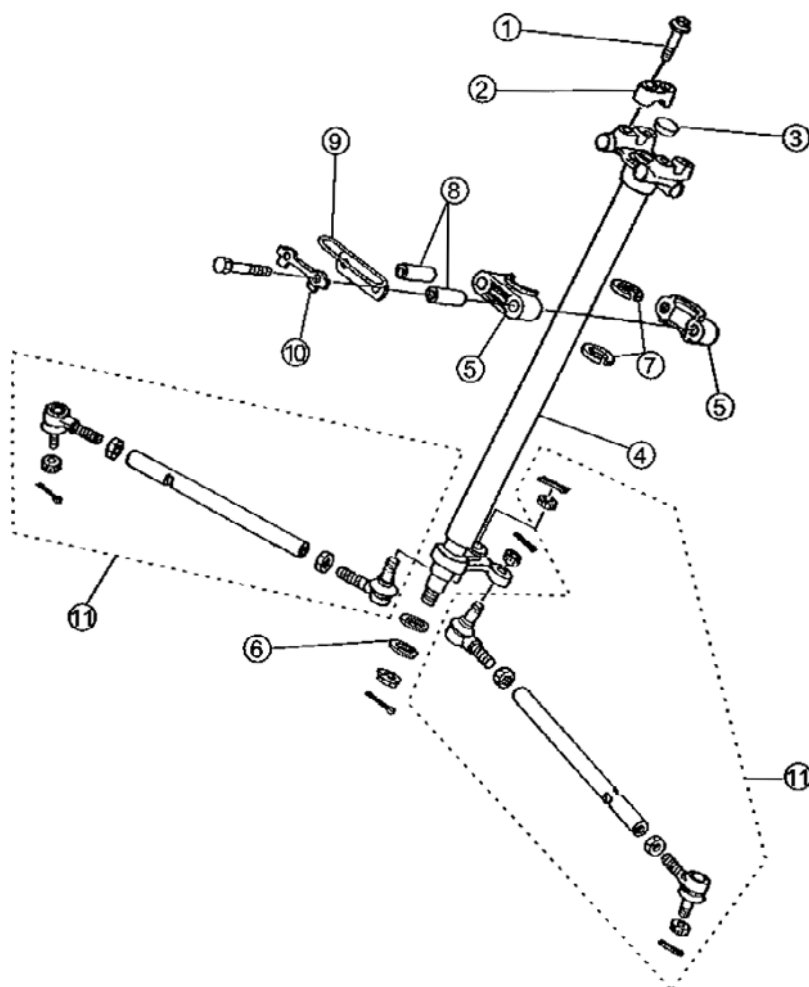
CHASIS DETAILS



CHASSIS DETAILS

5-4. STEERING SYSTEM BRIEFING

- | | | | |
|-------|---------------------|-------|---------------------|
| (01). | blot flange | (02). | holder handle upper |
| (03). | plug taper | (04). | steering |
| (05). | holder handle lower | (06). | washer |
| (07). | joint universal | (08). | collar |
| (09). | bracket | (10). | washer lock |
| (11). | tie rod | | |

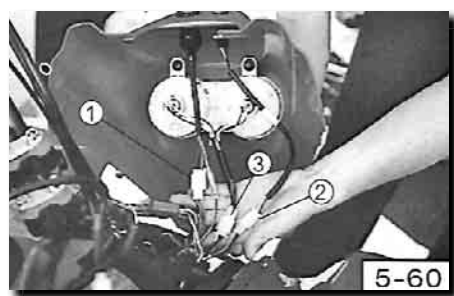
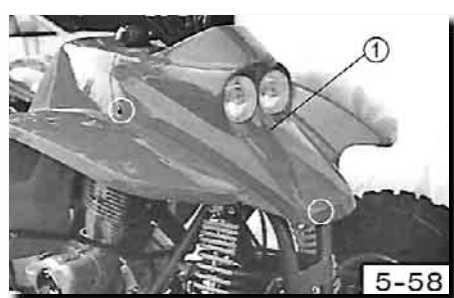
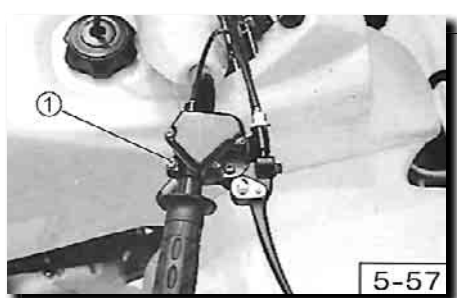
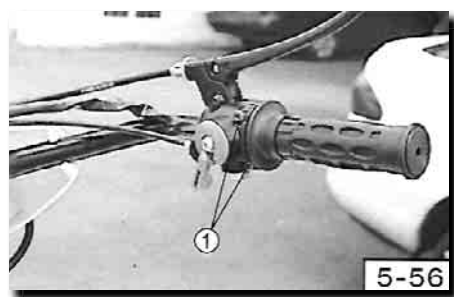
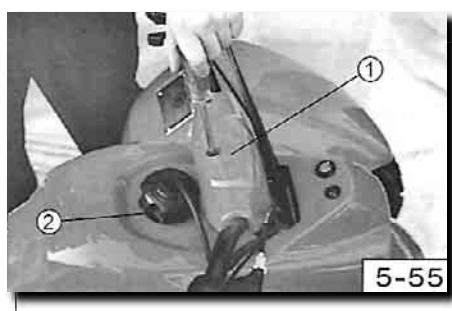


CHASSIS DETAILS

5-4. STEERING SYSTEM

5-4-1. Removal

01. remove handlebar cover Fig. 5-55
02. disconnect fuel breather hose
03. remove the L and R lever holder Fig. 5-56, 5-57
04. remove the front cover (1) Fig. 5-58
05. disconnect main switch (1), neutral (2), front lamp leads (3)



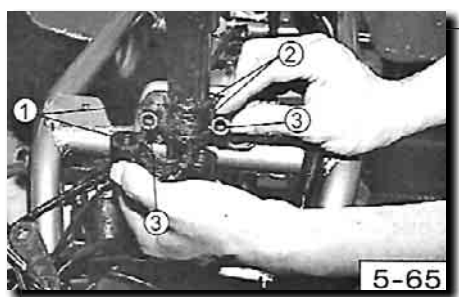
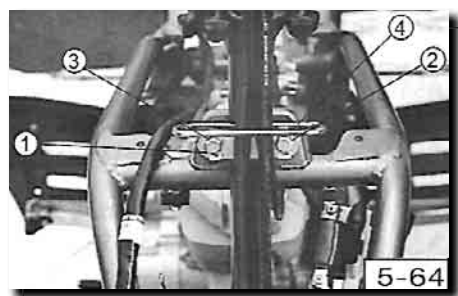
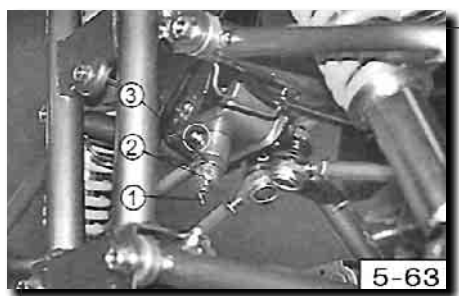
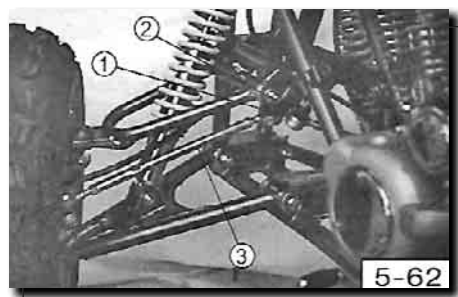
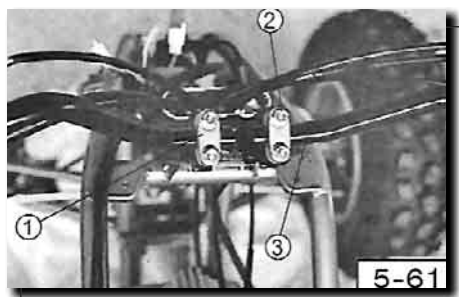
CHASIS DETAILS

<continue 5-4-1. Removal>

- 06. remove the stay (1) Fig. 5-61
- 07. remove the handlebar holders (2) Fig. 5-61
- 08. remove the handler (3) Fig. 5-61
- 09. remove cotter pins (1), nuts (2) and tie rods (3) Fig. 5-62
- 10. remove cotter pins (1) nut (steering column) (2) , and washer (3) Fig. 5-63
- 11. straighten lock washer tabs (1) Fig. 5-64
- 12. remove bolts (2), lock washer (3) , cable holder (4) Fig. 5-64
- 13. remove bearing (1), oil seals (2), collars (3) Fig. 5-65
- 14. remove steering column (1) Fig- 5-66



CHASIS DETAILS



CHASSIS DETAILS

5-4-2. Inspection

01. handlebar for any cracks/bends/damage -- replace Fig. 5-67

02. steering column for any bends/damage -- replace Fig. 5-68

WARNING

DO NOT ATTEMPT TO STRAIGHTEN A BENT SHAFT, WHICH MAY DANGEROUSLY WEAKEN THE SHAFT.

03. inspect bearing (1) and oil seals (2) for any wear/damage -- replace Fig. 5-69

04. inspect tie-rod for any bend/damage -- replace Fig. 5-70

05. check tie-rod end movement, any free play -- replace Fig. 5-71

06- check tie-rod end movement, any turns roughly -- replace

07. tapered surface on tie-rod end for any pitting/wear/damage -- replace. Fig. 5-71

08. adjust L & R tie-rod length and rod-end angle under:

1). loosen the locknuts (1) Fig. 5-72

2). adjust the tie-rod length by turning both tie-rod ends.

* tie-rod length: 321mm (12.6 in)

3). set rod-end (2) on knuckle arm side in an angle where the indentation surface (3) of the tie-rod is parallel to the rod-end shaft (4), and then tighten the locknut. Fig. 5-73

* torque: 3.0 kg-m

4). set other rod-end (5) on steering column side in an angle as shown in "A" and "B" position, and tighten locknut. The threads "C" on both rod-ends must be of same length.

* rod-end angle: 164 - 166 degree

* torque: 3.0 kg-m

5). after adjustment on both tie-rods, mark R & L on.

* "A" == R tie-rod

"B" = L tie-rod

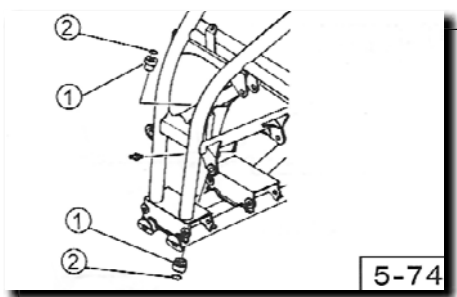
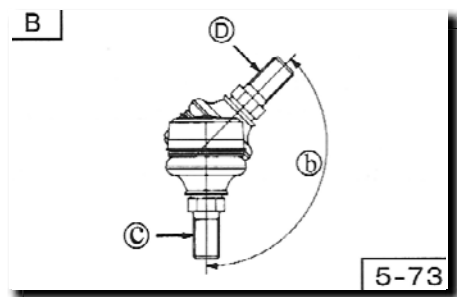
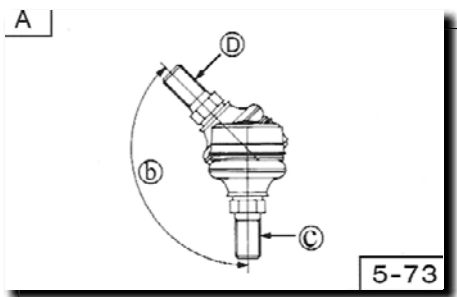
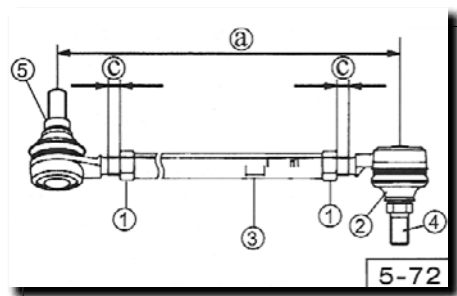
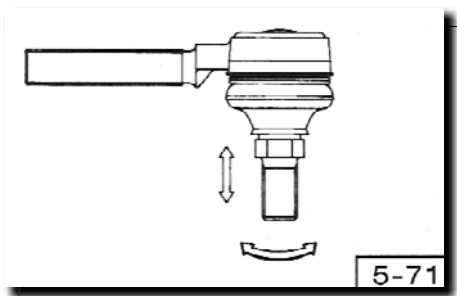
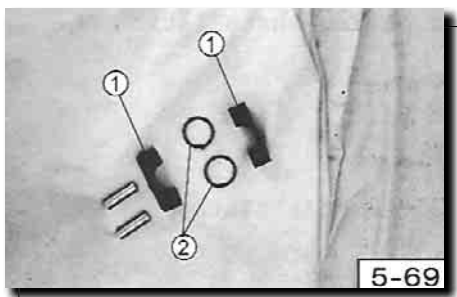
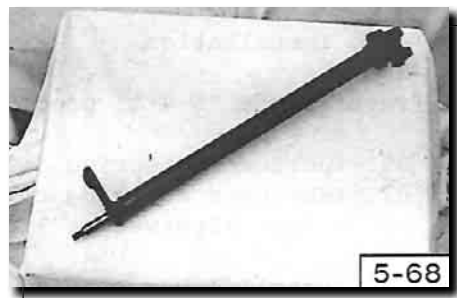
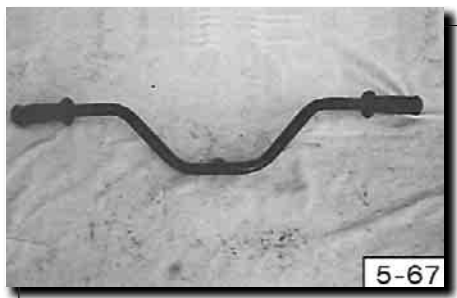
"C" = to knuckle arm

"D" = to steering column

09. inspect bushing (1) o-ring (2) for any wear/damage -- replace Fig. 5-74



CHASSIS DETAILS

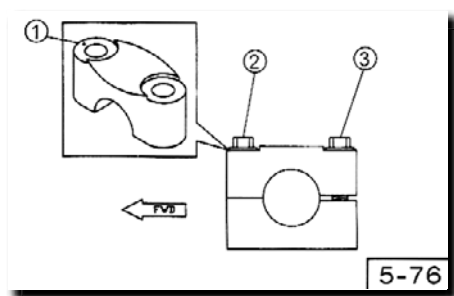
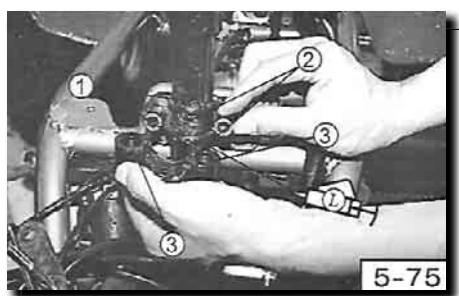


CHASSIS DETAILS

5-4-3. Installation

- reverse the "5-4-1" procedure and follows the points as;

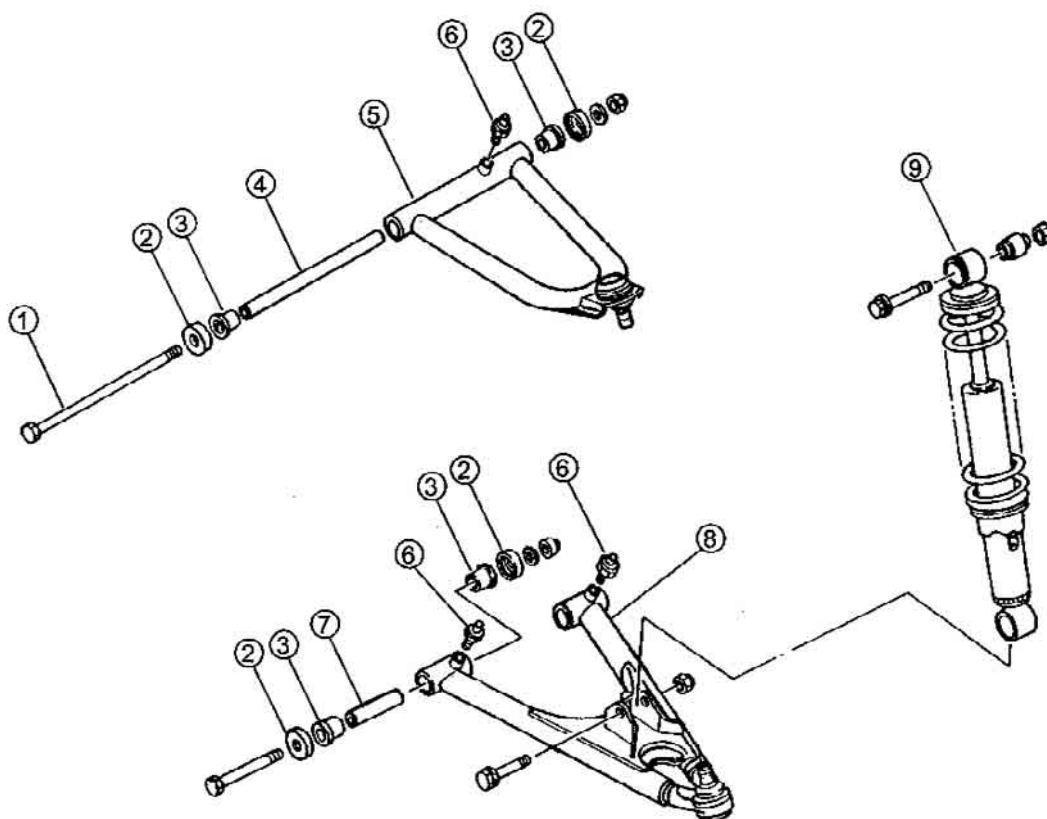
01. lubricate steering column bushings
02. lubricate steering column bearings and lip oil seals
* use: lightweight lithium-soap base grease.
03. install lower bearing (1) Fig. 5-75
04. install oil seals (2), collars (3), upper bearing (4). Be sure co do not damage the oil seals during installation.
05. install cable holder and new washer
06. install steering column holder bolt
* torque: 2.3 kg-m
07. bend the lock washer tab along the bolt flats
08. tighten the steering column
* torque: 3.0 kg-m
09. install new cotter pin
10. put L & R tie-rods, rod end mark is facing up knuckle arm.
11. tight en tie-rod nuts
* torque: 2.5 kg-m
12. install new cotter pin
13. tighten handlebar holder bolts. Be sure the upper handlebar mark (1) face co front. Tighten the bolts (2) on the from side of handlebar holder and then tighten the bolts (3) on the rear side. Fig. 5-76
* torque: 2.0 kg-m
14. install throttle housing and front brake lever
* torque: 1.0 kg-m
15. fit the throttle housing projection onto the indent on the front brake lever.
16. adjust toe-in -- refer to part 3-19.



CHASSIS DETAILS

5-5. FRONT- SHOCK ABSORBER AND FRONT ARMS BRIEFING

- | | | | |
|-------|----------------|-------|---------------|
| (01). | shaft pivot | (02). | cover thrust |
| (03). | bush solid | (04). | collar |
| (05). | upper arm | (06). | nipple grease |
| (07). | collar lower | (08). | lower arm |
| (09). | shock absorber | | |



CHASSIS DETAILS

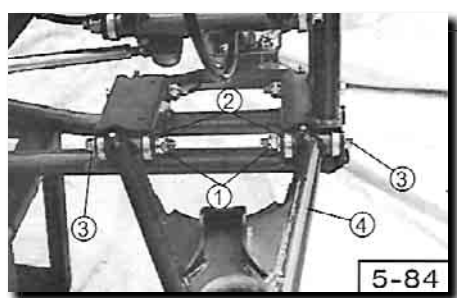
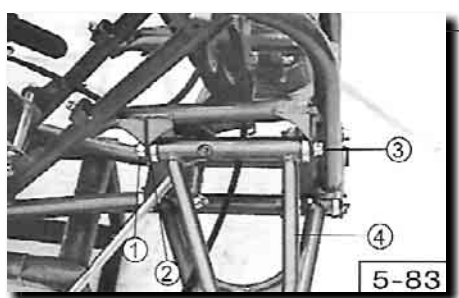
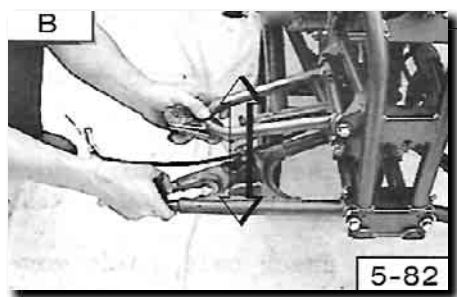
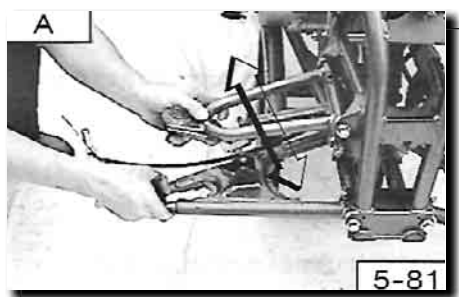
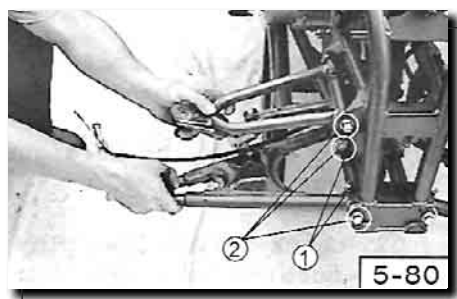
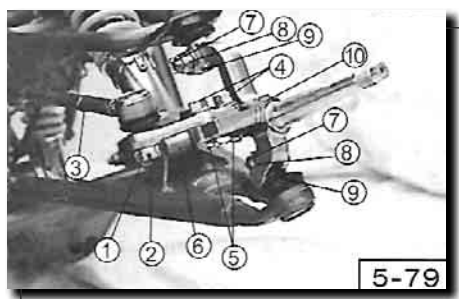
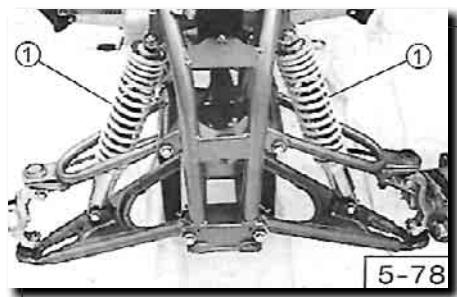
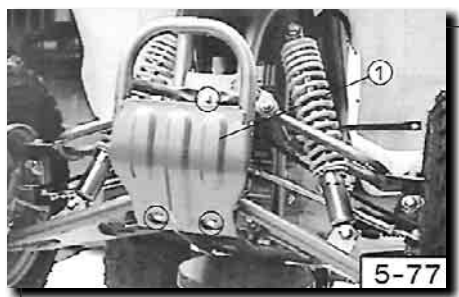
5 - 5. FRONT SHOCK ABSORBER AND FRONT ARMS

5-5-1. Removal

01. remove the f. wheel, hub, and brake shoe plate -- part 5-1
02. remove the front bumper Fig. 5-77
03. remove the shock absorber Fig. 5-78
04. remove the cotter pin (1), nut (2), tie-rod (3) (from knuckle arm) Fig. 5-9
05. remove the cotter pin (4), bolts (5), knuckle arm (6) Fig. 5-79
06. remove the cotter pin (7), nuts (8), bolts (9), and steering knuckle (10)
07. check front arms free play under Fig. 5-80, 5-81, 5-82
 - 1) check the front arm brackets (1) of the frame. Any bent, cracked, damage --- repair or replace
 - 2) check the tightening torque of the front arm (upper/lower) securing nuts (2)
* torque F. arm (upper and lower): 3.0 kg-n
 - 3) check the front arms (upper and lower) free play "A" by moving it from side to side. Any play noticeable -- replace the inner collar, bushings, and thrusts covers as a set.
 - 4) check the front arms (upper and lower) vertical movement "B" by moving it up and down. If movement is tight, binding, rough, replace the inner bushings, and thrusts covers as a set.
08. remove the nut (1), washer (2), bolts (3), upper front arm (4) Fig. 5-83
09. remove the nuts (1), washers (2), bolts (3), lower front arm (4) Fig. 84



CHASSIS DETAILS



CHASSIS DETAILS

5-5-2. Inspection shock absorber

- 01. check shock absorber rod for any bend/damage -- replace Fig. 5-85
- 02. check shock absorber any oil leaks -- replace
- 03. check shock absorber spring fatigue -- replace

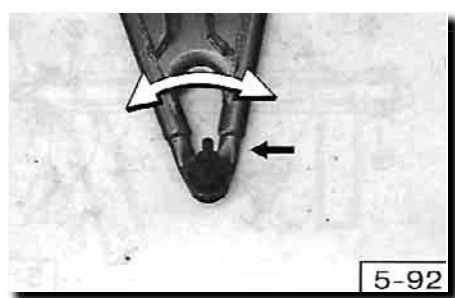
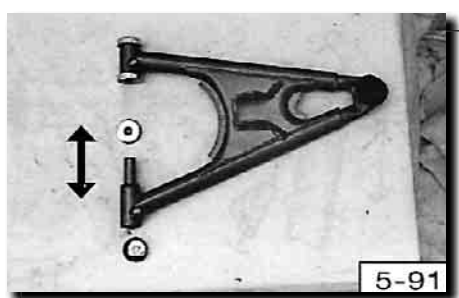
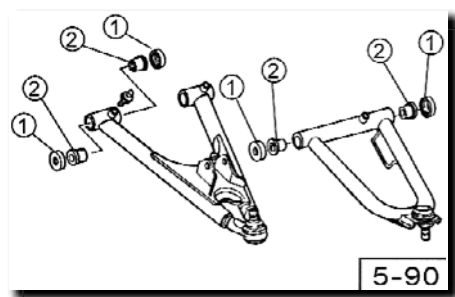
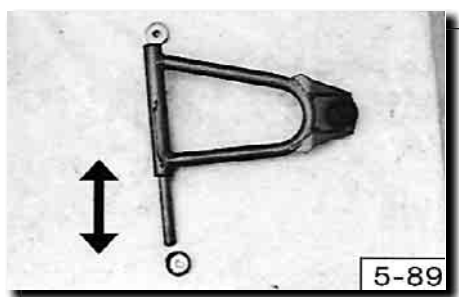
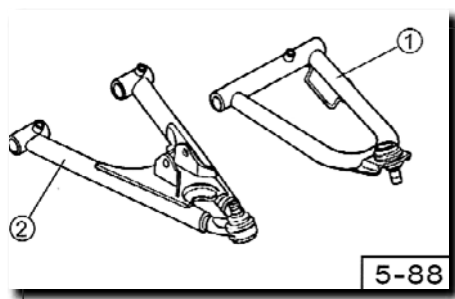
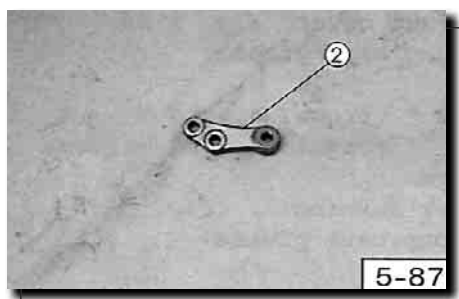
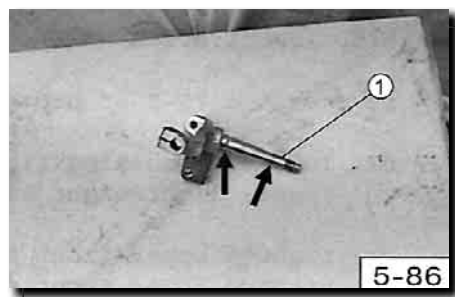
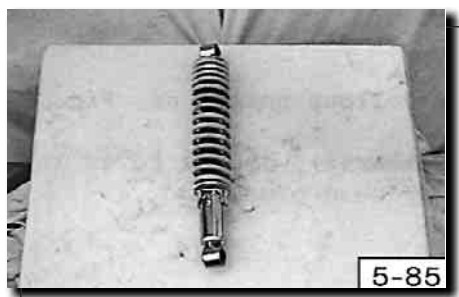
5-5-3. Inspection steering knuckled (1) and joint rod (2) Fig. 5-86, 5-87 for any cracks/pitting/damage -- replace

5-5-4. Inspection front arm upper (1) and lower (2) Fig. 5-88

- 01. any cracks/bends/damage -- replace
- 02. do not try to straighten a bent arm that will dangerously weaken the arm.
- 03. check collar free play, any loose -- replace inner collar and bushing as a set. Fig. 5-89, 5-91
- 04. insert the inner collar into front arm and check free play.
- 05. inspect thrust cover (1) and bussing (2) for any wear/damage -- replace Fig. 5-90
- 06. check ball joint movement for any exits free play -- replace Fig. 5-92
- 07. check ball joint movement for any turns roughly -- replace Fig. 5-92
- 08. check ball joint surface for any pitting/wear/damage -- replace Fig. 5-92



CHASSIS DETAILS



CHASSIS DETAILS

5-5-5. Installation

- reverse the "5-5-1" procedure and follows points as; Fig. 5-93

01. lubricate bushing (1), inner collar (2), thrust cover (3)

* use: lightweight lithium soap base grease

02. tighten upper front arm nut (4)

03. tighten lower front arm nut (5)

04. inject grease from the nipples (6) using a grease gun until slight overflow front the thrust cover. Fig. 5-94

* use: lightweight lithium soap base grease

05. tighten steering knuckle nuts

* torque: 4.8 kg-m

06. tighten knuckle arm bolts

* torque: 3-8 kg-m

07. connect tie-rod to knuckle arm

08. lubricate front shock absorber bushing (1) Fig. 5-95

* use: lightweight lithium soap base grease

09. tighten front shock absorber nuts (2)

* torque: 4.5 kg-m

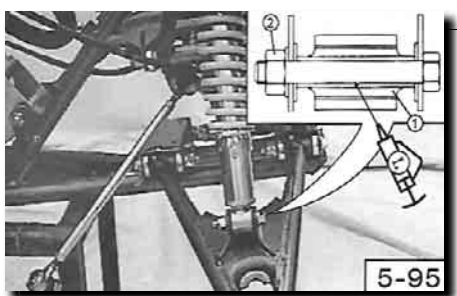
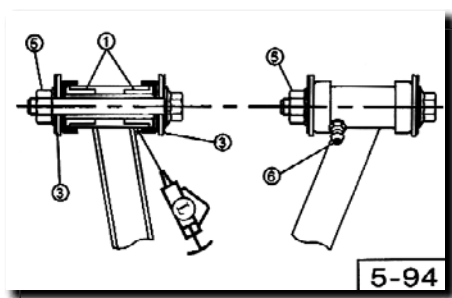
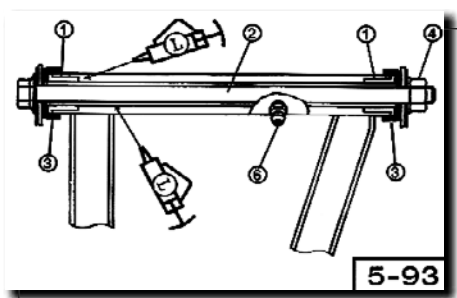
10- tighten front shock absorber bolts

* torque: 2.6 kg-T.

11. install front brake assembly

12. install, front wheel -- refer to part 5-1

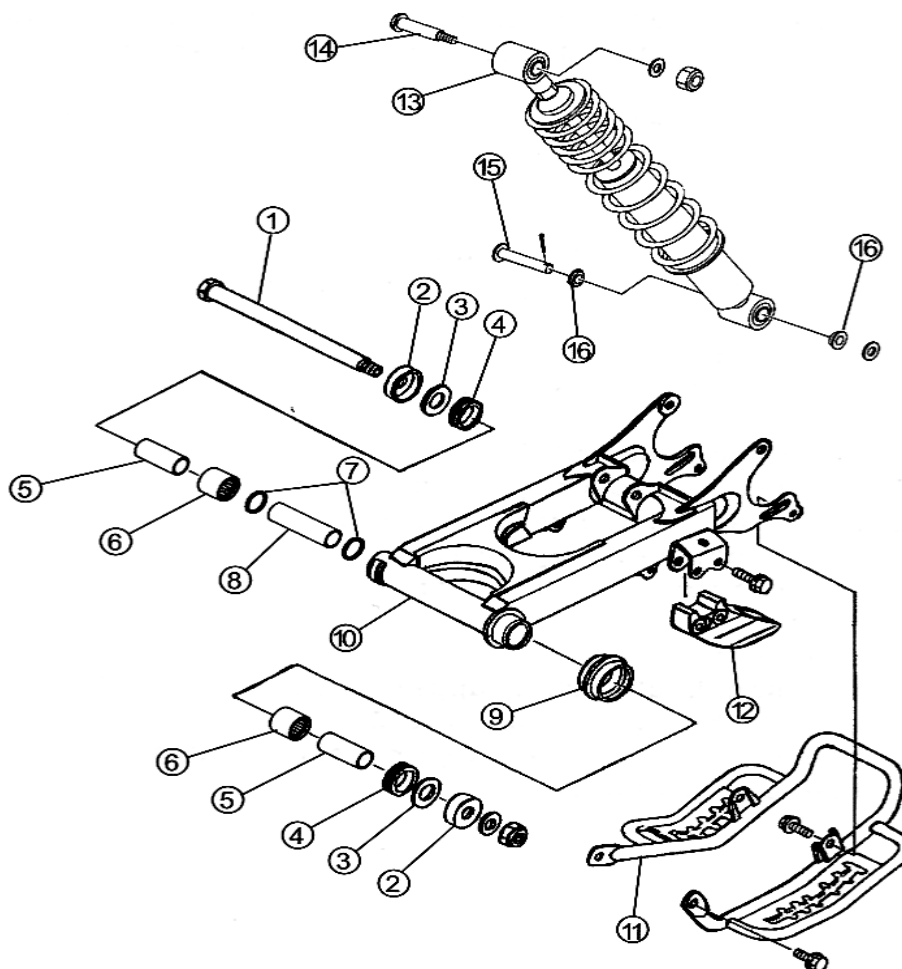
13. adjust front shock absorber refer to part 5-5 and 3-20



CHASSIS DETAILS

5-6. REAR SHOCK ABSORBER AND SWING - ARM BRIEFING

- | | | | |
|-------|----------------|-------|-----------------------|
| (01). | Shaft pivot | (02). | Cover thrust |
| (03). | Washers | (04). | Oil seal |
| (05). | Bush | (06). | Bearing needle roller |
| (07). | O-ring | (08). | Spacer |
| (09). | Seal guard | (10). | Rear arm |
| (11). | Under guard | (12). | Support chain |
| (13). | Shock absorber | (14). | Bolt |
| (15). | Pin clevis | (16). | Cover thrust |



CHASSIS DETAILS

5 .6. REAR SHOCK ABSORBER AND SWING ARM

WARNING

NORMALLY, THE REAR SHOCK ABSORBER JUST REPLACE A NEW ONE WHENEVER ANY WEAR/DAMAGE SHOWING UP. IT IS RARELY REQUIRE DISASSEMBLY THE REAR SHOCK ABSORBER.

THE SHOCK ABSORBER CONTAINS HIGHLY COMPRESSED NITROGEN GAS, THE MAKER WILL TAKE NO ANY RESPONSIBLE FOR PROPERTY DAMAGE OF PERSONAL INJURY THAT MAY RESULT FROM IMPROPER HANDLING.

1. DO NOT TAMPER TO ATTEMPT TO OPEN THE CYLINDER ASSEMBLY
2. DO NOT SUBJECT SHOCK ABSORBER TO AN OPEN FLAME OR OTHER HIGH HEAT, THAT MAY CAUSE THE EXPLODE DUE, TO EXCESS GAS PRESSURE.
3. DO NOT. DEFORM OR DAMAGE THE CYLINDER IN ANY WAY. CYLINDER DAMAGE WILL RESULT IN POOR DAMPING PERFORMANCE
4. TAKE CARE NOT SCRATCH THE CONTACT SURFACE OF THE PISTON ROD WITH THE CYLINDER, OR OIL, COULD LEAK OUT.
5. WHEN SCRAPPING THE SHOCK ABSORBER FOLLOW THE "NOTE" ONLY

NOTE

DISPOSAL REAR ABSORBER STEPS FIG. 5-96

GAS PRESSURE MUST BE RELEASED BEFORE DISPOSING OF SHOCK ABSORBER BY DRILLING (1) A 2-3MM (0.08 - 0.12IN) (A) HOLE THROUGH GAS CHAMBER WALL AT A POINT 25- 30MM (1.0 - 1.2 IN) FROM BOTTOM END OF GAS CHAMBER.

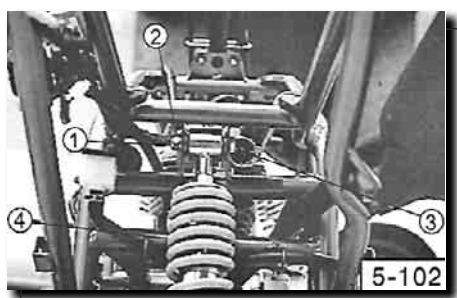
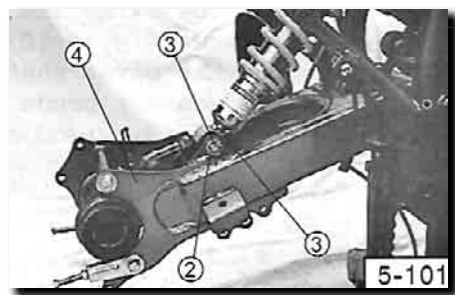
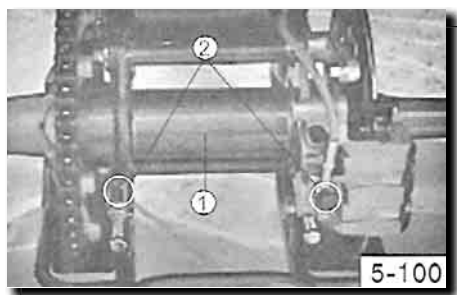
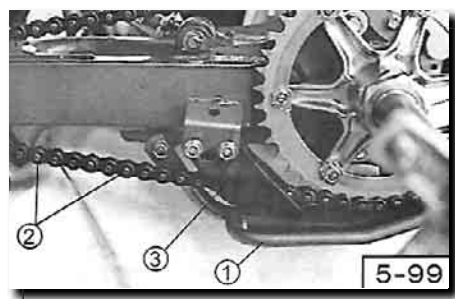
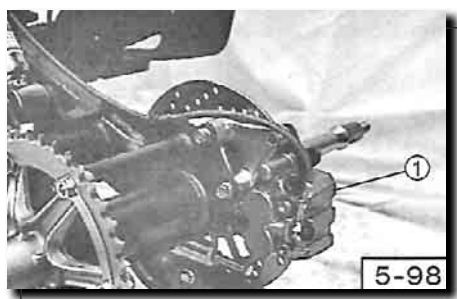
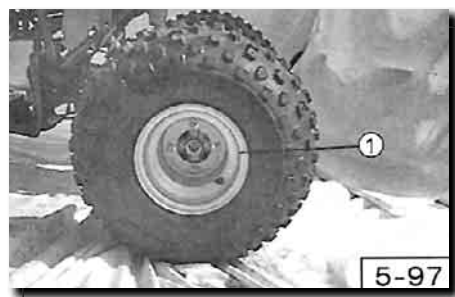
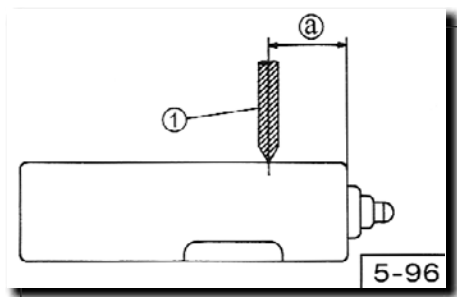
BE SURE TO WEAR EYE PROTECTION TO PREVENT EYE DAMAGE FROM ESCAPING GAS OR METAL CHIPS.

5 -6 -1. Removal

01. place the ATV on a level place
02. elevate the rear wheel by placing a stand under frame
03. remove the rear wheel (1) Fig. 5-97
04. remove the caliper (1). Do not. place parking brake lever or brake pedal when the caliper (1) is taken out from disc. Fig. 5-98
05. remove the under guard (1) Fig. 5-99
06. remove the chain assembly (2) and chain guide (3) Fig. 5-99
07. remove the rear axle hub (1) with rear axle Fig. 5-100
08. remove the tensioner Fig. 5-100
09. remove the cotter pin (1), washer (2), shaft (3). Be hold the swing arm (4) during removing the lower shaft. Fig. 5-101
10. remove the seat
11. remove the shock absorber upper nut (1) Fig. 5-102
12. remove the washer (2) Fig. 5-102
13. remove the shock absorber- upper bolt (3) Fig. 5-102
14. remove the shock absorber (4) Fig. 5-102



CHASSIS DETAILS



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5.6.2 . Inspection and remove the swing arm

01. check the swing arm free play under (1) Fig. 5-103

1) check the tightening torque of the pivot shaft (swing arm securing nut
* torque: 8.5 kg-m

2) check the swing arm side play "A" by moving it from side to side. Any noticeable, check the inner collar, bearing bushing, and thrust cover, or adjust the shim. Fig.5-104

3) check the swing arm vertical movement "B" by moving it up and down. Any movement, is tight, binding or rough, check the inner collar, bearing, bushing, check inner collar, bearing, bushing and thrust cover, or adjust the shim. Fig 5-105

02. remove the swing arm pivot, shaft nut (1) washer (2) Fig. 5-106

03. remove the swing arm pivot shaft (3) Fig. 5-106

04. remove the swing arm (4) Fig. 5-106

05. remove the thrust covers (1) Fig. 5-107

06. remove the L side washer (2), oil seal (3) Fig. 5-107

07. remove the R and L inner collars (4) spacer (5) Fig. 5-107

08. remove the L thrust cover protector (6) Fig. 5-107

09. inspect the swing arm set (7) for any crack/bend/damage -- replace Fig. 5-107

10. inspect the pivot shaft (1) by roll the axle on a flat surface, on any bends -- replace. Be sure do not try to straighten a bend axles, which will cause a weak pivot shaft.

5-6-3. Inspection

01. inspect shock absorber rod (1) for any bends/damage -- replace Fig. 5-108

02. inspect shock absorber for any oil leaks/gas leaks -- replace Fig. 5-108

03. move spring up and down to check any fatigue -- replace Fig. 5-108

04. any damage on thrust cover, inner collar, washer -- replace -- Fig. 5-107

05. any wear/damage on dust cover or protector -- replace Fig. 5-107

06. inspect o-ring (1) for any damage -- replace Fig. 5-109

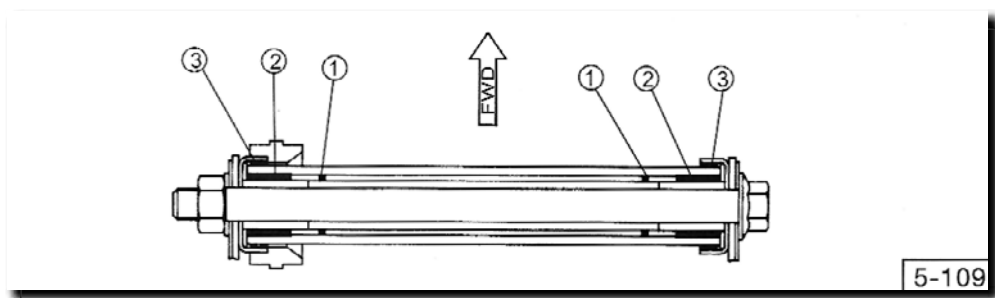
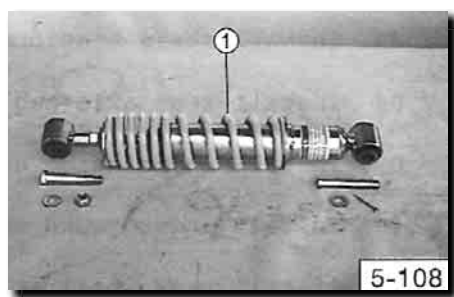
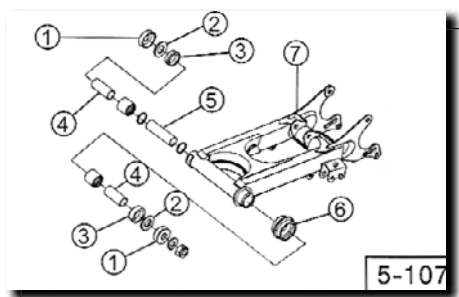
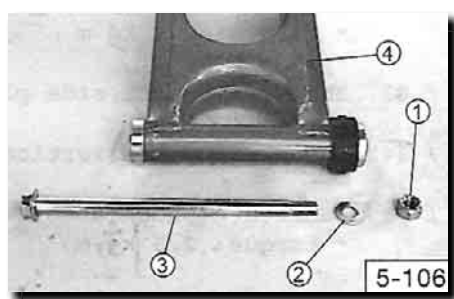
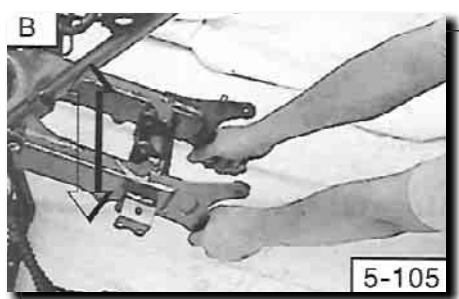
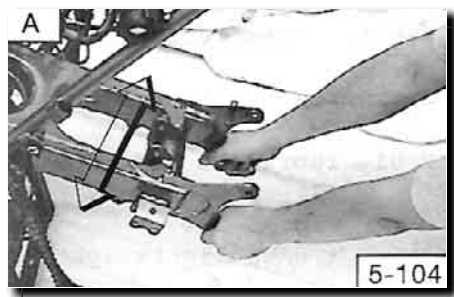
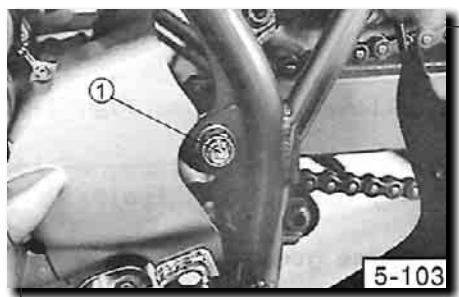
07. inspect bearing (2) and dust cover (3) for any scratches or damage -- replace Fig. 5-109

NOTE

BE SURE THE POSITION OF FITTING THE BEARING AND BUSHINGS.



CHASSIS DETAILS



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5-6-4. installation

- reverse the "5-6-1" procedure and follows points as; Fig. 5-110

01. lubricate bearings (1), bushing (2) on inner surface, o-ring (3), pivot shaft outer surface (4), dust cover lips(5). Fig. 5-110

* use: lightweight lithium soap base grease

02. tighten swing arm - pivot shaft nut

* torque: 8.5 kg-m

03. check swing arm side play

04. check swing arm vertical movement

05. lubricate shock absorber bushings (1) Fig. 5-121, 5-122

* torque: 2.5 kg-m

06. install new cotter pin

07. install chain tensioner

08. install rear axle hub with rear axle

09. install chain guide and chain assembly

10. install under guard and caliper

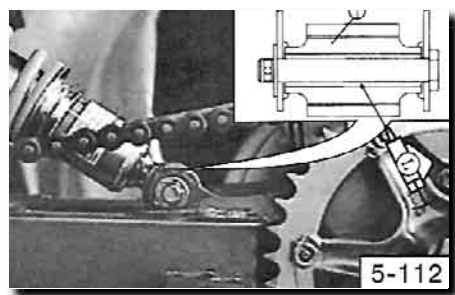
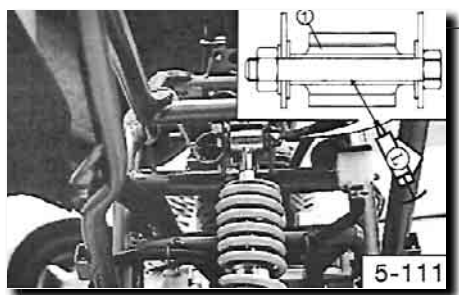
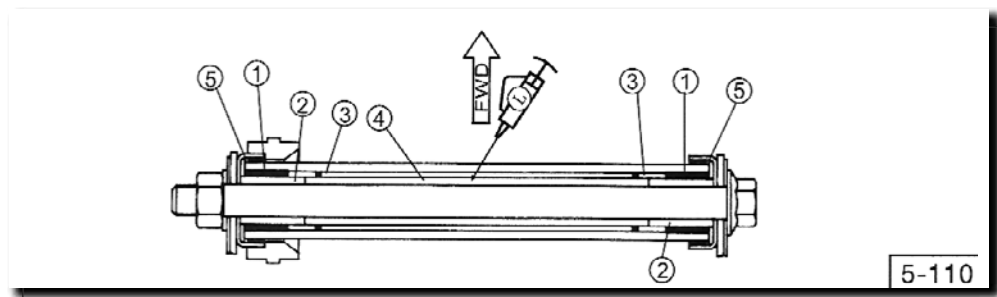
11. install rear wheel

12. adjust drive chain slack -- refer to pare 3-15

13. adjust rear shock absorber (option)



CHASSIS DETAILS



CHASSIS DETAILS

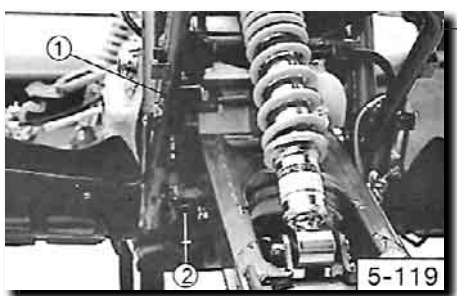
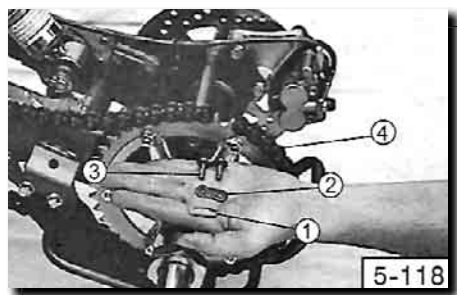
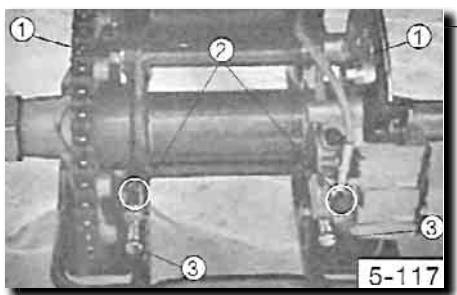
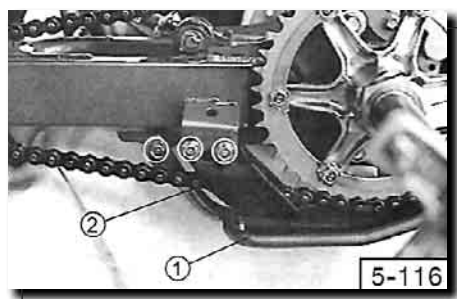
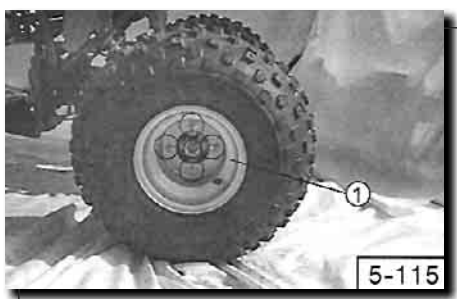
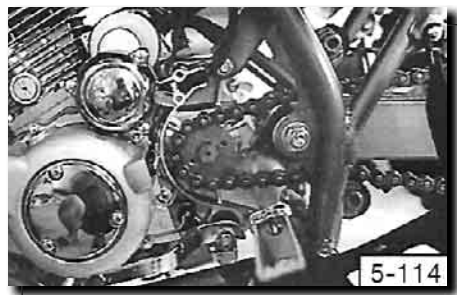
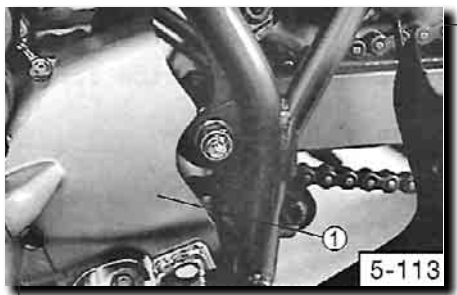
5 - 7. DRIVE CHAIN AND SPROCKET

5-7-1. Removal

01. remove the change pedal
02. remove the L crankcase cover (1) Fig. 5-113
03. remove the drive sprocket holder (2) Fig. 5-114
04. loosen L rear wheel nuts (1) Fig 5-115
- 05- elevate the rear wheels by placing suitable stand under frame
06. remove the L rear wheel (1)
07. remove the under guard (1) Fig. 5-116
08. loosen rear axle hub upper nut (1) and then lower hub nut (2) Fig. 5-117
09. loosen chain tensioner adjusters (3) Fig- 5-117
10. remove clip (1), plate (2), master link (3), and drive chain (4) Fig. 5-118
11. remove drive sprocket Fig. 5-114
12. remove chain guide Fig. 5-116
13. remove chain guide roller upper (1) and lower (2)



CHASIS DETAILS



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5-7-2. Inspection

01. measure the 10-link length -- out of specification for replacement Fig. 5-120

* 10-Link length limit: 150-1mm (5.91 in)

02. by using finger to check the chain tense, the 10-link is a distance between (1) and (11). Every time to check 2 or 3 "10-link" Fig. 5-121

03. clean drive chain by placing it in kerosene and brush off dirt. Next, dry the chain. Finally, lubricate the chain. Fig. 5-122

* use: lubricate (SAE 30-50 motor oil) drive chain

04. inspect drive chain stiffness for any stiff -- replace Fig. 5-123

05. inspect the drive sprocket, if more than 1/4 teeth (1) wear - replace. Fig. 5-124

06. inspect the drive sprocket, if bent teeth -- replace

07. inspect the chain guide Fig. 5-116

5-7-3. Driven sprocket replacement steps Fig. 5-125, 5-125A

01. straighten the lock washer (1) tabs and remove the driven sprocket (2).

02. install a new driven sprocket and lock washers.

* torque: 2.4 kg-m

03. bend the lock washer tabs along the nut flats.

5-7-4- Installation

- reverse the "5-7-1" procedure and follows points as; Fig. 5-121

01. lubricate (Molybdenum disulfide grease) inner surface collar

02. tighten chain guide roller bolts

* torque: 0.9 kg-m

03. install drive chain. Be sure to put the master link clip (1) on the rounded end facing the direction of travel Fig. 5-126

04. tighten under guard bolts and rear wheel nuts

* torque (under guard) : 2.3 kg-m

* (rear wheel nuts): 4.5 kg-m

05. tighten drive sprocket holder screw and change pedal bolts.

* torque (crankcase cover): 1.0 kg-m

* (change pedal): 1.4 kg-m

06- adjust drive chain slack -- refer to part 3-15

* drive chain slack: 30-40mm (1.18-1.57in)

07. tighten rear axle hub upper nut

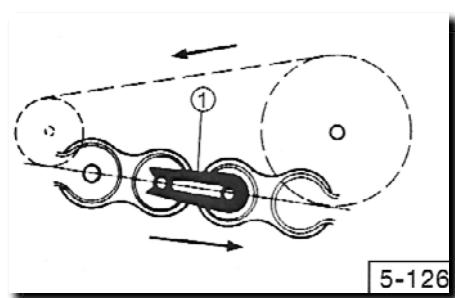
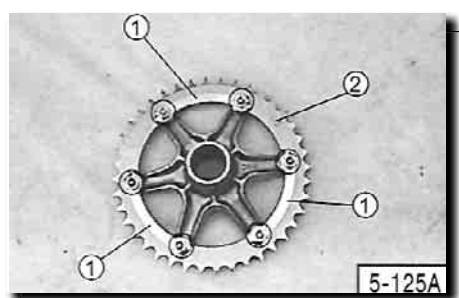
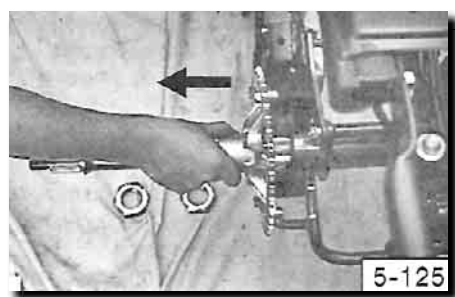
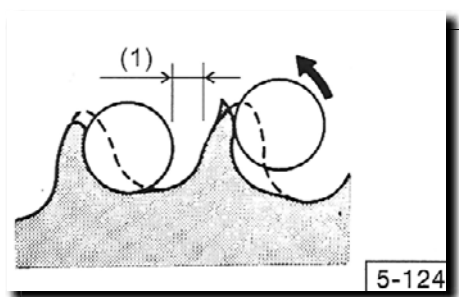
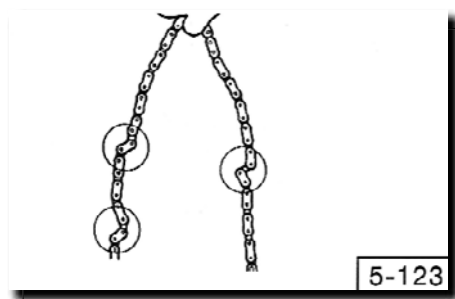
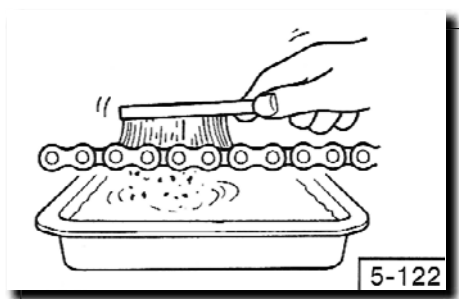
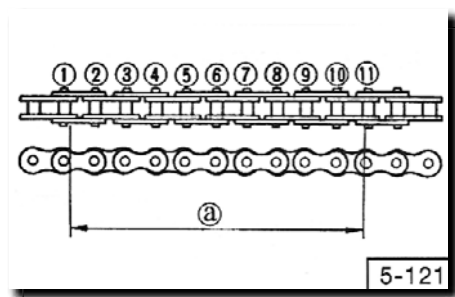
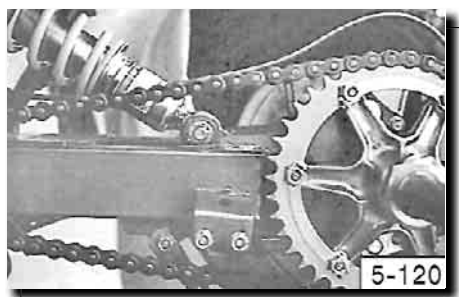
* torque: 5.0 kg-m Fig. 5-117

08. tighten rear axle hub lower nut

* torque: 5.0 kg-m



CHASSIS DETAILS



ELECTRIC DETAILS

PART 6. ELECTRIC DETAILS

6-01. SERVICE PRECAUTIONS (ELECTRIC DEVICE)

6-02. IGNITION SYSTEM

NOTE: SERVICE INFORMATION

NOTE: TROUBLE SHOOTING <Q-A>

1. Ignition Coil
2. CDI unit removal
3. GDI Inspection
4. Test with a CDI tester.
5. Pulse Coil Inspection
6. Exciter Coil Inspection

6-03. CHARGING SYSTEM

NOTE: SERVICE INFORMATION

NOTE: TROUBLE SHOOTING <Q-A>

1. Battery Removal
2. Installation
3. Charging inspection (open circuit voltage)
4. Charging
5. Performance test
6. Limit voltage test
7. A.C. Generator removal and inspection
8. Regulator/Rectifier

6-04. STARTING SYSTEM

NOTE: SERVICE INFORMATION

NOTE: TROUBLE SHOOTING <Q-A>

1. Starter motor removal
2. Disassembly and inspection
3. Starter motor housing continuity check
4. Brush inspection
5. Assembly
6. Starter relay inspection
7. Starter motor installation

6-05 . LIGHTS/ INSTRUMENTS/SWITCHES

NOTE: SERVICE INFORMATION

NOTE: TROUBLE SHOOTING <Q-A>

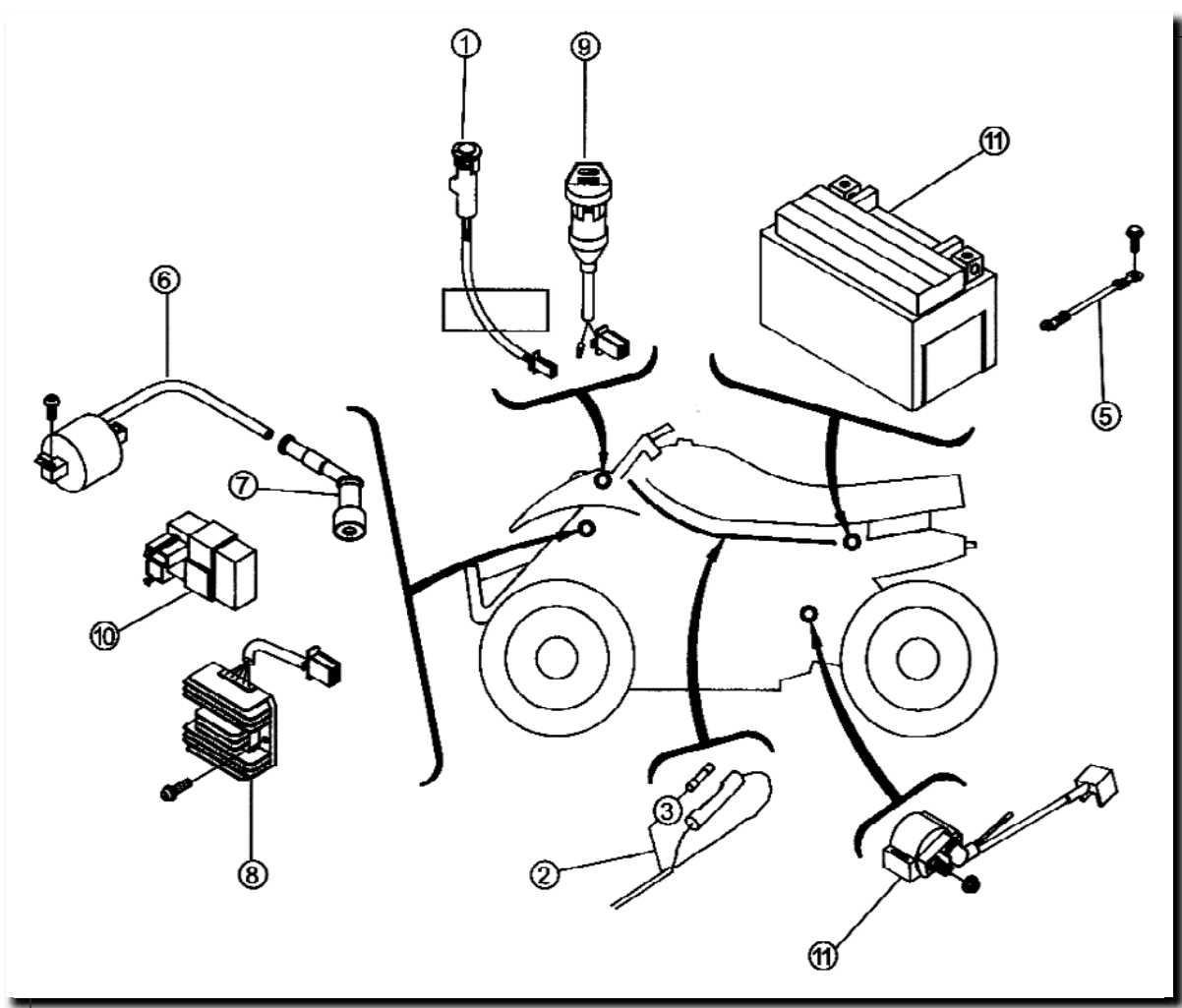
1. Light/switch/wire ... inspection
2. Main switch inspection
3. Handlebar switches



ELECTRIC DETAILS

GENERAL ELECTRIC SYSTEM BRIEFING

- | | | | |
|-------|-----------------|-------|--------------------------|
| (01). | neutral light | (02). | wire harness |
| (03). | fuse (15A 250V) | (04). | battery (YUASA YTX7A-BS) |
| (05). | earth cable | (06). | ignition coil |
| (07). | plug cap | (08). | rectifier & regulator |
| (09). | main switch | (10). | C.D.I. |
| (11). | starter relay | | |



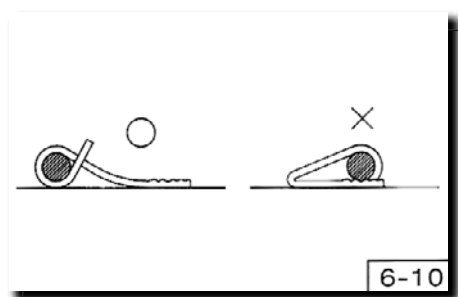
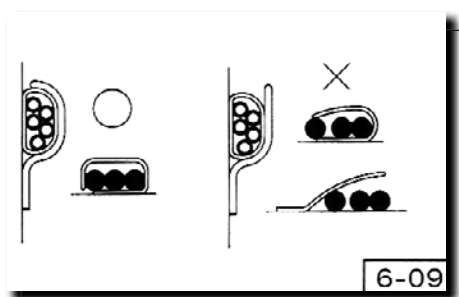
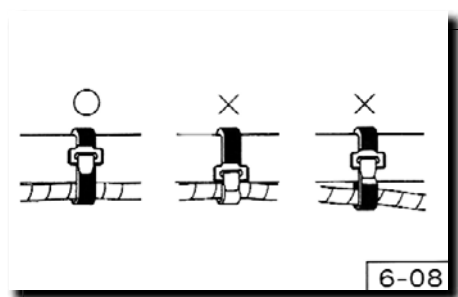
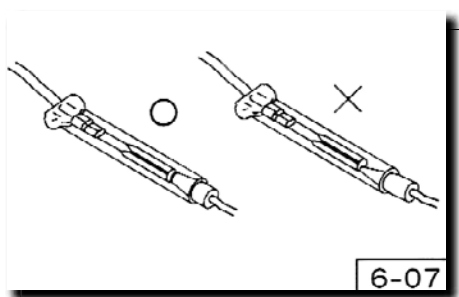
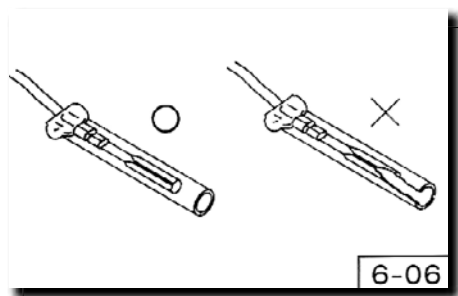
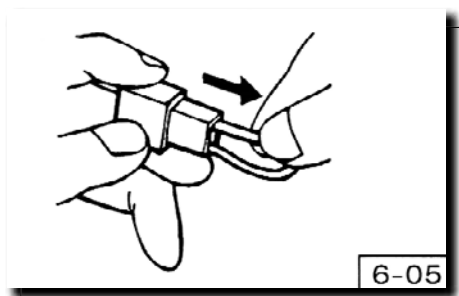
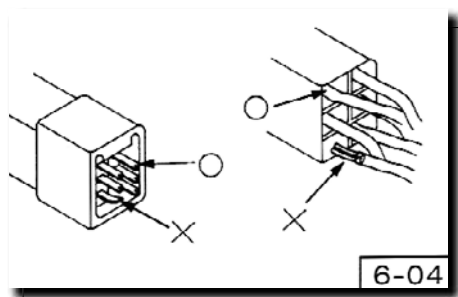
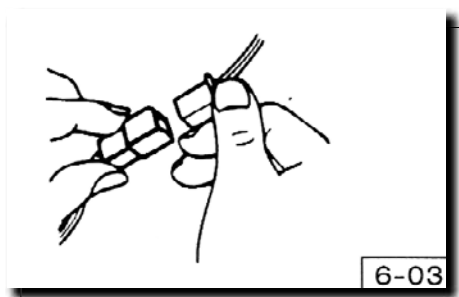
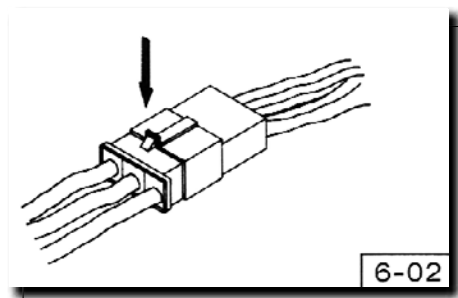
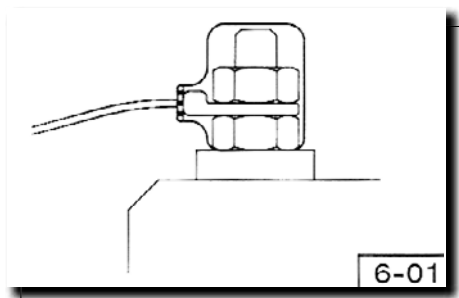
ELECTRIC DETAILS

6-1. SERVICE PRECAUTIONS (ELECTRIC DEVICES)

01. After operation, the terminal caps must be installed securely (Fig. 6-01).
02. When disconnecting the connector, the lock on the connector shall be released first (Fig. 6-02)
03. Hold the connector body when connecting or disconnecting it. Do not pull the connector wire (Fig. 6-03).
04. Check if any connector terminal is bending, protruding or loose (Fig. 6-04).
05. The connector must be inserted completely. If the double connector has a lock, lock it at the correct position. Be checked if there is any loose wire (Fig. 6-05).
06. Before connecting a terminal, check for damaged terminal cover or loose negative terminal (Fig. 6-06).
07. Insert the terminal completely. Check the terminal cover for proper coverage. Do not make the terminal cover opening face up (Fig. 6-07).
08. Secure wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wire harnesses (Fig. 6-08).
09. After clamping, check each wire to make sure it is secure (Fig. 6-09) .
10. Do not squeeze the wire against the weld or its clamp (Fig. 6-10).

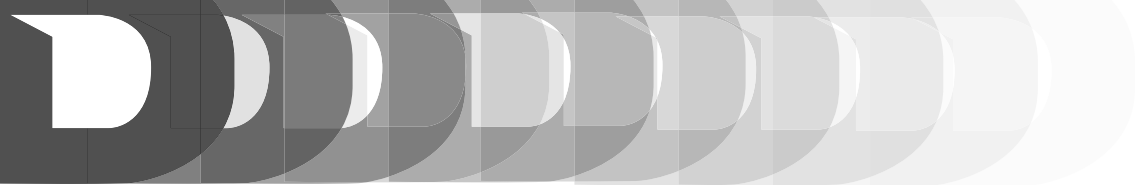


ELECTRIC DETAILS

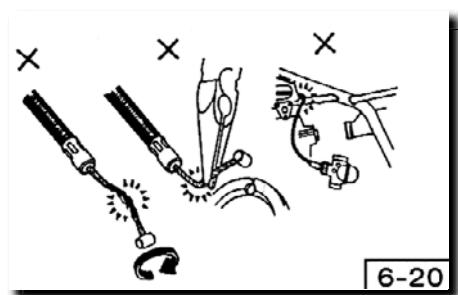
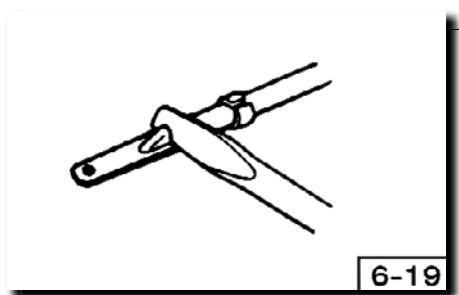
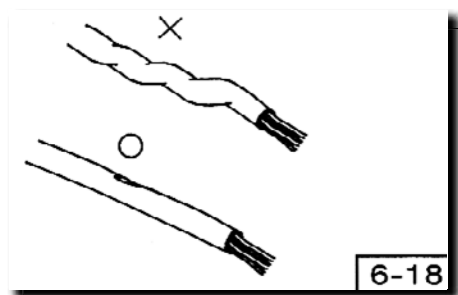
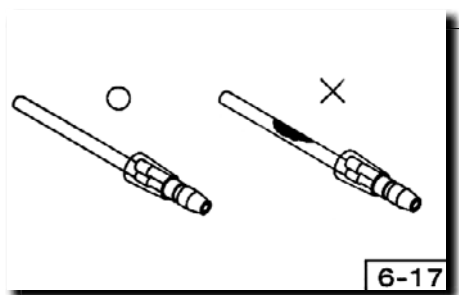
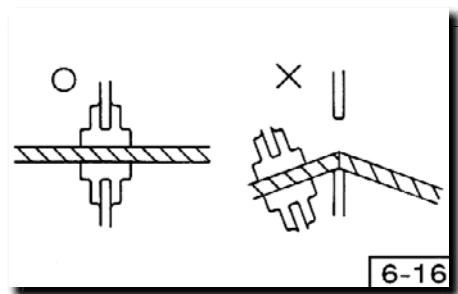
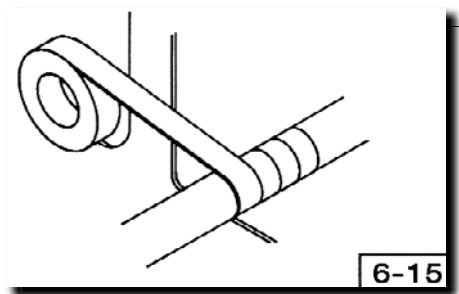
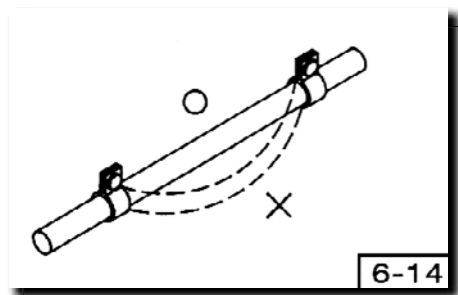
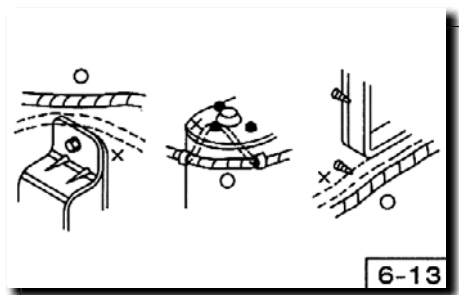
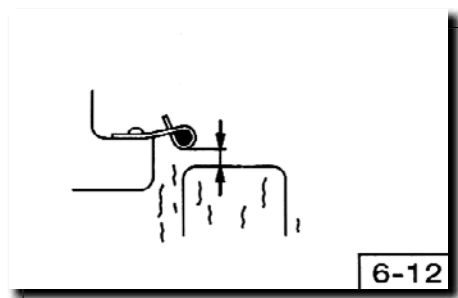
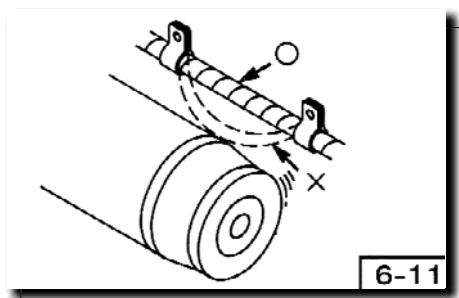


ELECTRIC DETAILS

11. After clamping, check each harness to make sure that it is not interfering with any moving or sliding parts (Fig. 6-11).
12. When fixing the wire harnesses, do not make it contact with the parts which generate high heat (Fig. 6-12).
13. Route the wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws. Route the wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws (Fig. 6-13).
14. Route the harnesses so they are neither pulled the tight nor have excessive slack (Fig. 6-14).
15. Protect wires and harnesses with electrical tape or tube if they come in contact with a sharp edge or corner (Fig. 6-15).
16. When the rubber protecting covers are used to protect the wire harnesses, they shall be installed securely (Fig. 6-16).
17. Do not break the sheath of the wire. If a wire or harness has a broken sheath, it can be repaired by wrapping it with a protective tape or replacing it.
18. After routing, check that the wire harnesses are not twisted or kinked (Fig. 6-17)
19. wire harnesses routed along the handlebar should not be pulled tight, have excessive slack or interfere with adjacent or surrounding parts in all steering positions.
20. When a testing device is used, make sure to understand the operating methods thoroughly and operate according to the operating instructions (Fig. 6-18) .
22. Be careful not to drop any parts.
23. When rust is found on a terminal, remove the rust with sand paper or equivalent before connecting (Fig. 6-19) .
24. Do not bend or twist the control cables. Damaged control cables will not operate smoothly and may stick or bind (Fig. 6-20).



ELECTRIC DETAILS

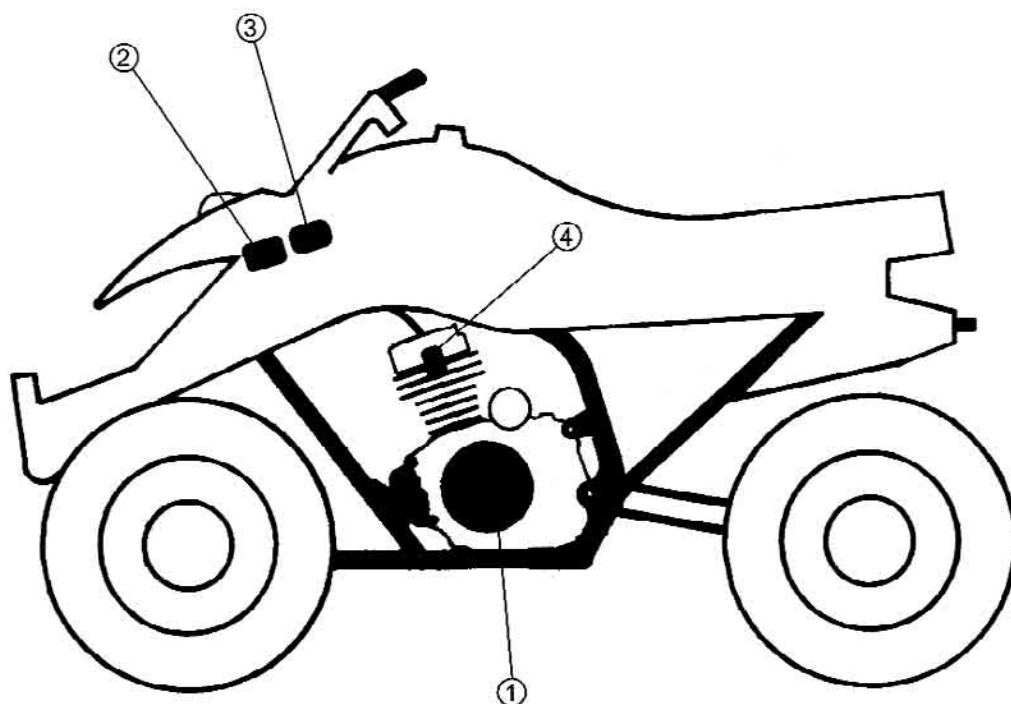


ELECTRIC DETAILS

6-2. IGNITION SYSTEM BRIEFING

(01). AC generator
(03). Ignition coil

(02). C.D.I.
(04). plug cap



ELECTRIC DETAILS

6-2. IGNITION SYSTEM

NOTE SERVICE INFORMATION

ITEM	STANDARD	
Spark plug	Standard type Hot type Cold type	DR-8EA NGK DR-7EA NGK DR-9EA NGK
Spark plug gap		0,6 - 0,7 mm
Ignition timing	"F" mark: 15 +/-2 or 1.400 rpm	Max. aligning angle: 33 +/-2 a 3.900 rpm
Ignition coil	Primary coil	0,2 - 0,3 Ohm
resistance(20 C)	Secondary with plug cap Coil with plug cap	7,6 - 8,6 K 3,2 - 4,8 K
Pulse coil	resistance (20c)	50 - 60 Ohm
Exciter coil	resistance (20c)	100 - 120 Ohm
Max. voltage at ignition 140V Min. coil primary side		140 V min.
Pulse coil max. Voltage		1,5 V / 300 rpm min.
Exciter coil max. voltage		300 - 10.000 rpm 400 V max.

ELECTRIC DETAILS

CAUTION

1. THE IGNITION SYSTEM HAS AN ELECTRICAL AUTO ALIGNED IN THE CDI UNIT. SO THE IGNITION TIMING IS NOT ADJUSTABLE.
2. DO NOT DROP OR IMPACT THE CDI UNIT WITH STRONG FORCE TO AVOID DAMAGE. BE CAREFUL WHEN REMOVING IT.
3. LOOSE CONNECTOR IS THE MAIN CAUSE OF FAULTY IGNITION SYSTEM. BEFORE OPERATION, CHECK EACH CONNECTOR FOR PROPER CONNECTION.
4. CHECK THE SPARK PLUG'S HEAT RANGE. IMPROPER SPARK PLUG WILL CAUSE POOR ENGINE PERFORMANCE OR BURNED ENGINE.
5. SPECIAL TOOLS OR TESTING INSTRUMENTS: ELECTRIC TESTER. TIMING LIGHT, AND TACHOMETER

NOTE

TROUBLESHOOTING

<Q-A> Engine stalls immediately after it starts?

- Weak spark
- Improper ignition timing
- Faulty CDI unit

<0-A> No spark at plug?

- Faulty ignition switch
- Poorly connected, broken, or shorted wire on
 - (1). between pulse coil, CDI unit, and ignition coil
 - (2). between exciter coil and CDI unit
 - (3). between CDI unit and ignition coil
 - (4). between CDI unit and ignition switch
 - (5). between ignition coil and spark plug

<Q-A> Engine starts but runs poorly?

- Faulty ignition coil
- Poorly connected wire
- Faulty spark plug
- Spark plug cap electricity leakage
- Faulty A.C. generator
- Starter not installed properly (Loose)
- Faulty CDI unit

ELECTRIC DETAILS

6-2-1. Ignition Coil

01. continuity test (Fig. 6-21)

1) . remove the front cover under the fuel tank.

2). disconnect the ignition coil (1) wire coupler and measure resistance between ignition coil primary wire terminals.

* Resistance: 0.2-0.3 OHM

02. remove the spark plug cap and measure the secondary coil resistance between the spark plug wire and the primary coil terminal (Fig. 6-21A).

* Resistance: 3.2-4.8 OHM (without plug cap)

CAUTION

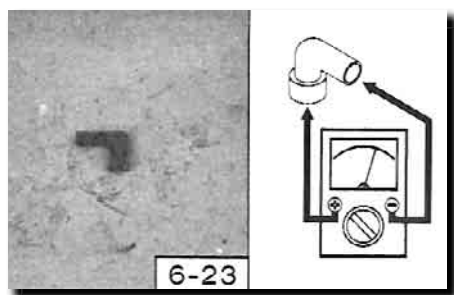
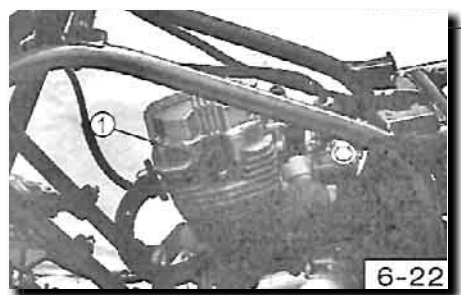
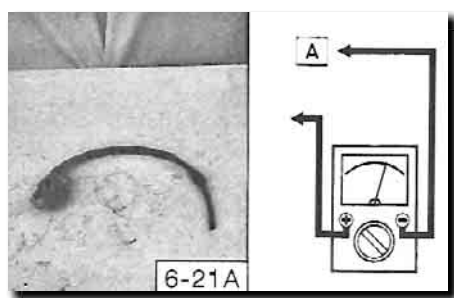
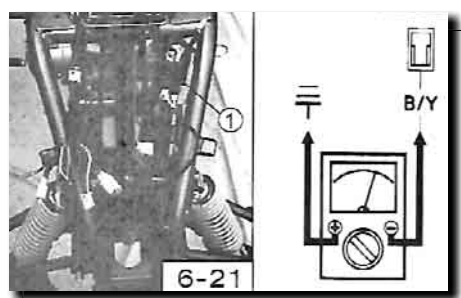
THIS TEST IS FOR REFERENCE ONLY. ACCURATE TEST SHOULD BE PERFORMED WITH A CDI TESTER.

03. measure the spark plug cap's resistance. Remove the spark plug cap (1) and measure the spark plug's resistance. Fig. 6-22, 6-23

* Resistance: 4.2-5.8 OHM

04. performance test with a CDI tester.

If the spark is weak - inspect the spark plug and CDI unit. If both of them are normal - replace a new ignition coil.



ELECTRIC DETAILS

6.2-2. CDI unit removal (Fig. 6-24)

01. remove the front lamp cover.
02. disconnect the CDI unit (1) coupler and remove the CDI unit.

NOTE

C.D.I. CONDENSER DISCHARGE IGNITION

6-2-3. CDI Inspection (Fig. 6-25, 6-26)

01. measure the resistance between the CDI unit terminals.
02. replace the CDI unit if the readings are not with in the specifications in the table (Fig. 6-26) below.

CAUTION

THE CDI UNIT. IS FULLY TRANSISTORIZED. FOR ACCURATE TESTING, IT IS NECESSARY TO USE A SPECIFIED TESTER. USING AN IMPROPER TESTER OR MEASUREMENTS IN IMPROPER RANGE MAY GIVE FALSE READINGS. USE ELECTRIC TESTER FOR TESTING.

6-2-4. <OPTTON> Test with a CDI tester - reference.

NOTE

REFERENCE OF CDI TESTER

OPERATE THE CDI TESTER FOLLOWING THE MANUFACTURER'S OPERARION MANUAL. CONNECT THE SPECIAL CONNECTOR TO THE CDI COUPLER AND CDT TESTER.

Switch Range	C.D.I (Good)	C,D,I (Faulty)
1. OFF	No spark	---
2. P	No spark	---
3. EXT	No spark	Good spark
4. ON1	Good spark	No spark
5. ON2	Good spark	No spark

if the CDI unit; is faulty, replace with a new one.

6-2-5. Pulse Coil Inspection (Fig. 6-27)

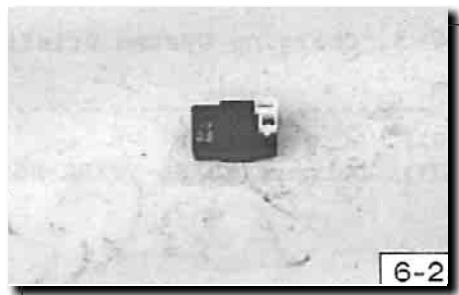
01. disconnect the pulse coil coupler
02. measure the resistance of the terminals.
* Resistance: 50-60 OHM

6-2-6. Exciter Coil Inspection (Fig. 6-28)

01. disconnect the exciter coil wire coupler
02. measure the resistance between the wire terminal and ground.
* Resistance: 100-120 OHM



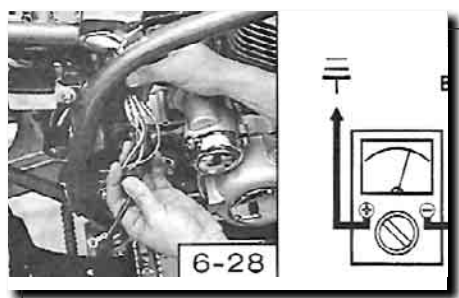
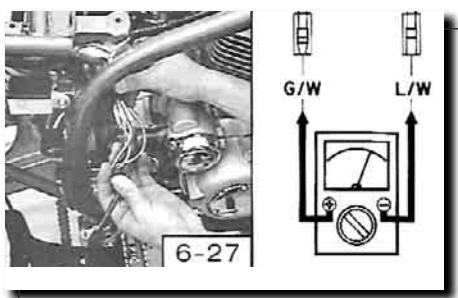
ELECTRIC DETAILS



⊖ ⊕	B/W	B/R	G	L/W	B/Y	G/W
B/W		∞	∞	∞	∞	∞
B/R	3-6K		Needle swings then ∞	Needle swings then ∞	∞	∞
G	35-42K	18-22K		8-10K	8-10K	∞
L/W	15-18K	4.5-5.5K	7-9K		Continuity	∞
B/Y	15-18K	4.5-5.5K	7-9K	Continuity		∞
G/W	∞	∞	∞	∞	∞	

C.D.I. UNIT

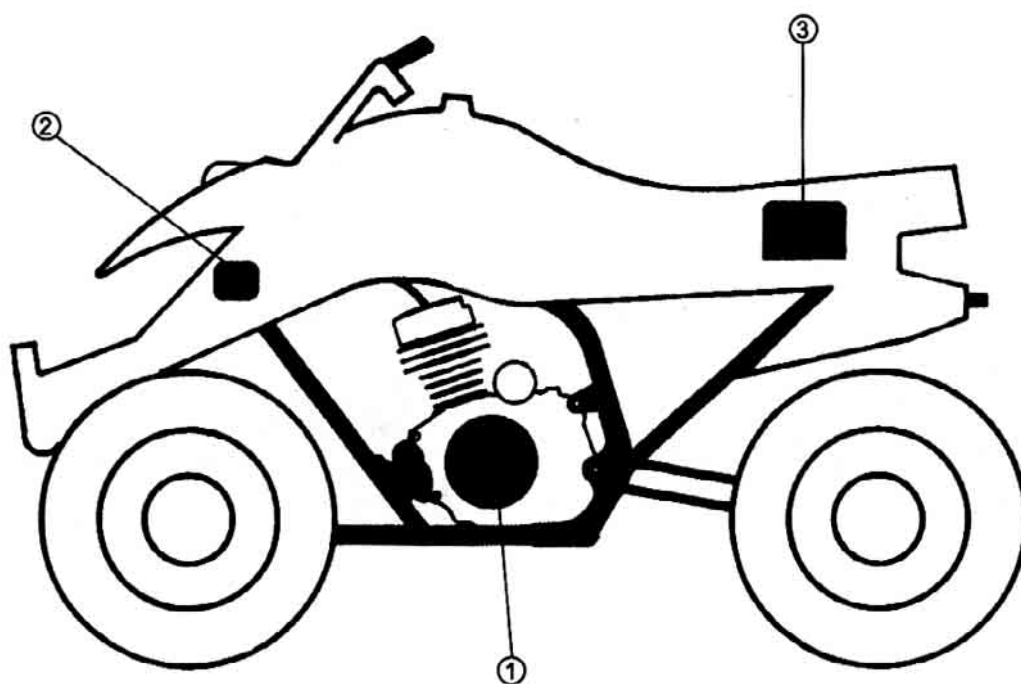
6-26



ELECTRIC DETAILS

6-3. CHARGING SYSTEM BRIEFING

- | | | | |
|-------|--------------------------|-------|-----------------------|
| (01). | AC generator | (02). | rectifier & regulator |
| (03). | battery (YUASA YTX7A-BS) | | |



ELECTRIC DETAILS

6-3. CHARGING SYSTEM

NOTE

SERVICE INFORMATION

Battery capacity	12V7AH (MF)
Electrolyte specific gravity	1.320 20 C
Charging current	3,0A max.
A.C Generator - Charging RPM	2.100 rpm (min.)
- Capacity	2A min. / 3000 rpm
Regulator/Rectifier	No contact point
Charging coil resistance	0,2 - 0,3 OHM

CAUTION

1. THE BATTERY IS A MF BATTERY WHICH IS UNNECESSARY TO REFILL WITH DISTILLED WATER.
2. DO NOT QUICK CHARGE THE BATTERY. USE A MF BATTERY CHARGER AND THE BATTERY TEMPERATURE SHOULD NOT EXCEED 45 C.
3. REMOVE THE BATTERY FROM THE VEHICLE FOR CHARGING. IF BATTERY MUST BE CHARGED ON THE MOTORCYCLE, KEEP SPARKS AND FLAMES AWAY FROM A CHARGING BATTERY.
4. WHEN INSPECTING THE A.C. GENERATOR, USE AN ELECTRIC TESTER.
5. ROUTE THE CHARGING SYSTEM WIRES PROPERLY TO AVOID SHORTED WIRE DUE TO WIRES BEING TWISTED OR KINKED.
6. TORQUE VALUE:
 - 1). A.C. GENERATOR STARTER: 0.8-1.2 KG-M
 - 2). A.C. GENERATOR ROTOR : 5.5-6.5 KG-RO
7. SPECIAL TOOLS:
 - 1). FLYWHEEL HOLDER.
 - 2). FLYWHEEL PULLER
8. TESTING INSTRUMENTS: ELECTRIC TESTER

ELECTRIC DETAILS

NOTE

TROUBLESHOOTING

<Q-A> No power?

- Dead battery
- Fuse burned out
- Disconnected battery cable
- Faulty ignition switch

<Q-A> Low battery?

- Weak battery
- Loose battery connection (terminal)
- Charging system failure
- Faulty regulator/rectifier

<Q-A> Intermittent power?

- Loose battery cable connection
- Loose charging system connection
- Loose lighting system connection

<Q-A> Charging system failure?

- Loose, broken, or shorted wire or connector
- Faulty regulator/rectifier
- Faulty A-C. generator

ELECTRIC DETAILS

6-3-1. Battery Removal (Fig. 6-29)

01. remove the seat.
02. disconnect the negative cable first, then the positive cable.
03. remove the battery (1).

CAUTION

WHEN DISCONNECTING THE POSITIVE CABLE, THE TOOL SHOULD NOT TOUCH THE FRAME; OTHERWISE IT WILL CAUSE FLAMES TO IGNITE GASOLINE AND DAMAGE THE BATTERY.

6-3-2. Installation

01. the installation sequence is the reverse of 6-2-1.
02. connect the positive cable first and then the negative cable.

6-3-3. Charging inspection(open circuit voltage)

01. remove the seat.
02. disconnect the battery terminal cables.
03. measure the voltage between battery charged the terminals.
 - * Full Charge : 13.1V on a voltmeter.
 - * Undercharged: 12.3V on a voltmeter. (Fig. 6-29A)

6-3-4. Charging

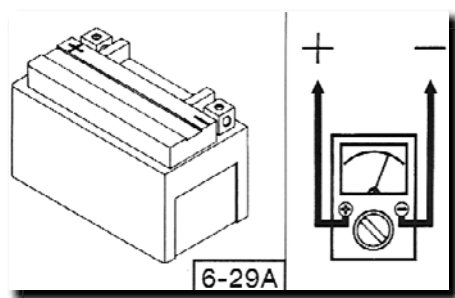
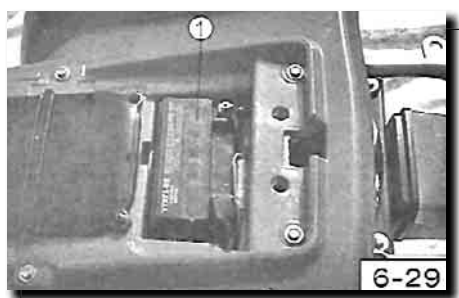
01. connect the charger positive(+) cable to the battery positive (+) terminal.
02. connect the charger negative (-) cable to the battery negative (-) terminal.

CAUTION

KEEP FLAMES AND SPARKS AWAY FROM A CHARGING BATTERY. TURN THE POWER ON/OFF AT THE CHARGER, NOT AT THE BATTERY • TERMINALS TO PREVENT SPARKS NEAR THE BATTERY CELLS CAUSING EXPLOSION. CHARGE THE BATTERY ACCORDING TO THE INSTRUCTIONS ON THE BATTERY SURFACE.

QUICK CHARGING SHOULD ONLY BE DONE IN AN EMERGENCY. MEASURE THE VOLTAGE 30 MINUTES AFTER THE BATTERY IS CHARGED.

- | | | |
|--|------------|------------------|
| * Charging current Standard : | 0. 7A | Quick : 3.OA |
| * Charging Time Standard : | 5-10(hrs) | Quick : 1.0 hour |
| * After Charging (open circuit voltage): | 12.8V min. | |



ELECTRIC DETAILS

6-3-5. Performance Test -- when the battery is fully charged.

01. start and warm up the engine for 10 minutes.
02. connect battery positive cable to the ammeter positive probe.
03. connect the voltmeter across the battery terminals to test the charging voltage.

Headlight Switch Position	Charging rpm	3000 rpm	8000 rpm
OFF(Day)	2.150 rpm max.	2A 13V	3A 13,5V
ON(Night)	2.150 rpm max.	2A 13V	3A 13,5V

6-3-6. Limit voltage test -- when the battery is fully charged Start the engine and gradually increase the engine speed to measure the limit voltage.

* Limit Voltage: 14.7 +/- 0,4V use a tachometer for operation.

6-3-7. A.C. Generator removal and inspection (Fig. 6-30)

01. disconnect the A.C. generator's wires
02. measure the resistance wires.
 - * Resistance: 0.2-0.3 OHM

CAUTION

DO NOT CONNECT THE A.C. GENERATOR'S WIRES TO GROUND.

6-3-8. Regulator/Rectifier (Fig. 6-31, 6-32, 6-33)

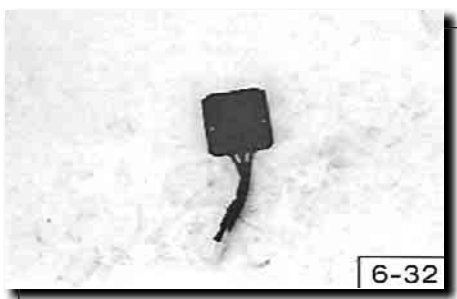
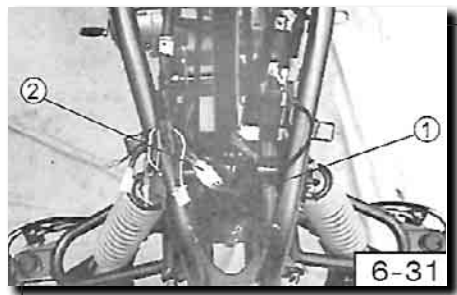
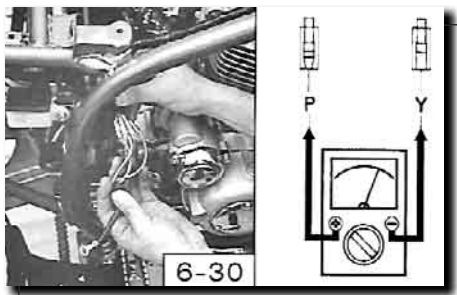
01. remove the front cover
02. remove the regulator/rectifier screw (1) and disconnect the regulator/rectifier wire coupler (2).
03. measure the resistances between the regulator/rectifier wire terminals. Replace the regulator/rectifier if the readings are not within the specification in the table (Fig. 6-33)

CAUTION

FOR ACCURATE TESTING, IT IS NECESSARY TO USE A SPECIFIED TESTER. USING AN IMPROPER TESTER OR MEASUREMENTS IN IMPROPER RANGE MAY GIVE FALSE READINGS.



ELECTRIC DETAILS



$\ominus \oplus$	P	Y	R	G	B
P		∞	4-7K	∞	∞
Y	∞		4-7K	∞	∞
R	∞	∞		∞	∞
G	4-6K	4-6K	13-17K		1-2K
B	4-7K	4-7K	13-17K	1-2K	

RECT/REGU

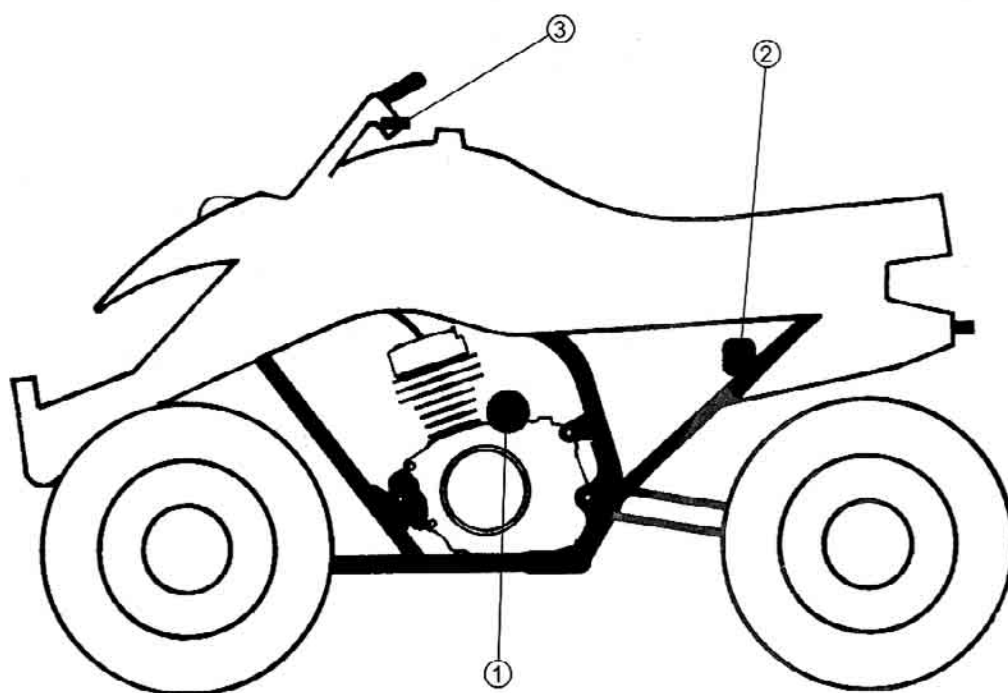
6-33

ELECTRIC DETAILS

6-4. STARTING SYSTEM BRIEFING

(01). starter motor
(03). start button

(02). starter relay



ELECTRIC DETAILS

6-4. STARRING SYSTEM

NOTE

SERVICE INFORMATION

Item	Standard (mm)	Service Limit (mm)
Starter motor brush length	---	8,5 mm

CAUTION

1. THE REMOVAL OF STARTER MOTOR CAN BE ACCOMPLISHED WITH THE ENGINE INSTALLED.
2. WHEN CONNECTING THE STARTING SYSTEM WIRES, CONNECT THEM SECURELY TO AVOID HARD STARTING DUE TO POOR CONNECTION.
3. TORQUE VALUE:
 - 1). STARTER MOTOR BOLT: 0.3-0.4 KG-M
 - 2) . STARTER CLUTCH LOCK NUT: 1.2 KG-M
4. SPECIAL TOOLS:
 - 1). FLYWHEEL HOLDER.
 - 2). FLYWHEEL PULLER.
 - 3). COMMON TOOLS

NOTE

TROUBLESHOOTING <Q-A>

<Q-A> Starter won't turn?

- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter clutch
- Faulty starter relay
- Loose wire connection
- Faulty starter motor

<Q-A> Lack of Power?

- Weak battery
- Loose wire connection
- Foreign matter stuck in starter gear

<Q-A> Engine does not start? but starter rotates?

- Faulty starter clutch
- Reverse rotation of starter motor
- Weak battery

ELECTRIC DETAILS

6-4-1. Starter motor removal(Fig. 6-34, 6-35)

01. remove the starter motor wire lock. nut (1) Fig. 6-34
02. remove the two starter motor mounting bolts (1) and the motor. Fig. 6- 35

CAUTION

BEFORE SERVICING THE STARTER MOTOR, TURN OFF THE IGNITION SWITCH AND DISCONNECT THE BATTERY GROUND. THEN TURN ON IGNITION SWITCH TU SEE IF THE STARTER MOTOR CAN OPERATE TO ENSURE WORK SAFETY.

6-4-2. Disassembly and inspection (Fig. 6 -36, 6-37, 6-38)

01. remove the two starter motor case bolts (1) and remove the front and rear covers, commutator, housing, and other parts. Fig. 6-36, 6-37
02. inspect the removed parts.
03. inspect the commutator for any wear. damage, or discoloration and other visual faults -- replace if necessary.
04. Clean off any metal powder from the commutator segments.
05. Check for continuity between pairs of commutator segments. There should be continuity. Fig. 6-38
06. a continuity check between individual commutator segment and armature shaft. There should be no continuity.

6-4-3. Starter motor housing continuity check (Fig. 6-39)

01. Check and make sure that there is no continuity between the wire terminal and the brushes -- replace if necessary.

6-4-4. Brush inspection (Fig. 6-40)

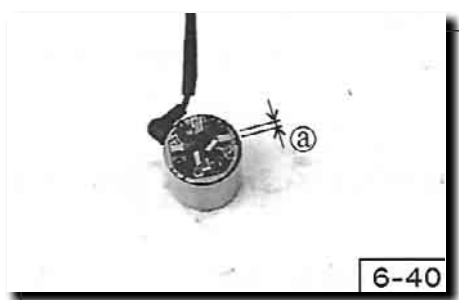
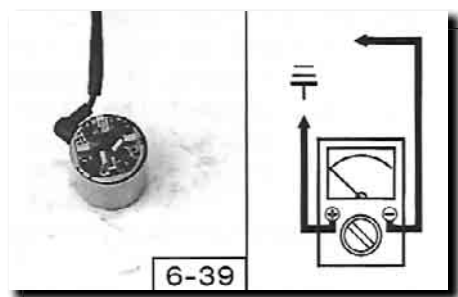
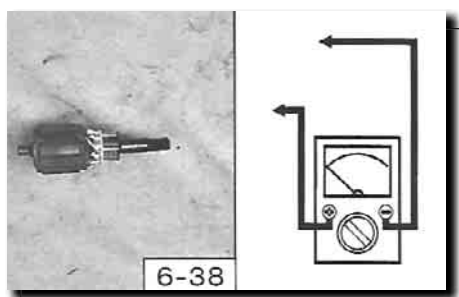
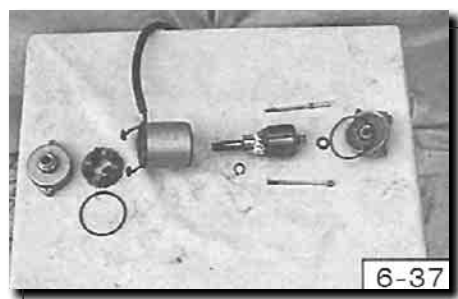
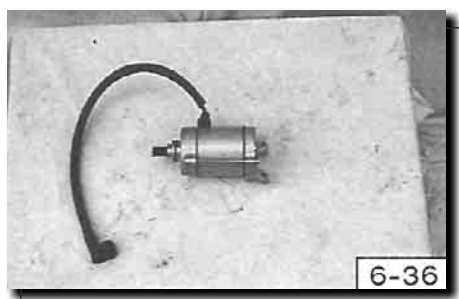
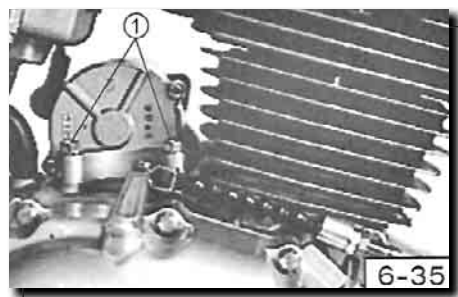
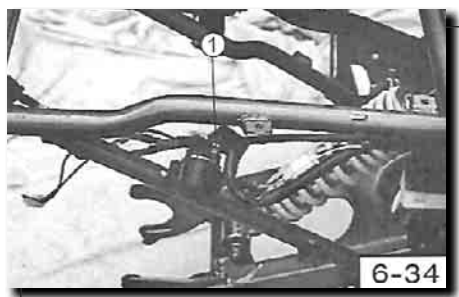
01. measure the length of each brush (a).
* Service Limit.:8.5mm; replace if below
02. check for continuity between the brushes replace if there is continuity.
03. check front cover bearing and oil seal for wear, looseness, or damage -- replace if necessary.
04. check the rear cover bearing for wear, looseness, or damage
* replace if necessary.

6-4.5. Assembly (Fig. 6-37)

01. remove the brush springs and then install the brushes into the brush holder.
02. insert the commutator into the starter motor body. Be careful not to damage the mating surfaces of brushes and commutator.
03. apply a thin coat of grease to the rear cover bearing and then install the washers and rear cover.
04. Install the brush spring and make sure that the brushes can move freely after installation.



ELECTRIC DETAILS



ELECTRIC DETAILS

<continue de 6-4-5 Assembly>

05. apply a thin coat of grease to the front cover oil seal and bearing.
06. install the special washer and the front cover to the motor body and do not damage the oil seal.
07. after the front and rear covers are installed, the punch marks must align each other.
08. install and tighten the case bolts.
* Torque: 0.8-1.2 kg -m
09. after assembly, check the starter motor for proper operation.

6-4-6. Starter relay inspection (Fig. 6-41, 6-42)

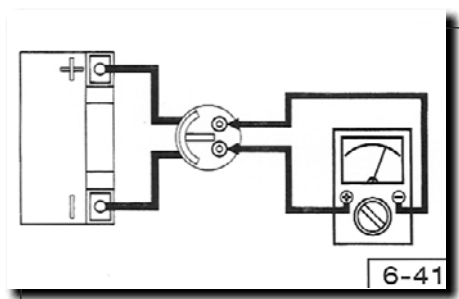
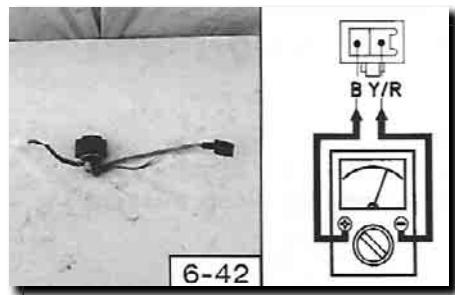
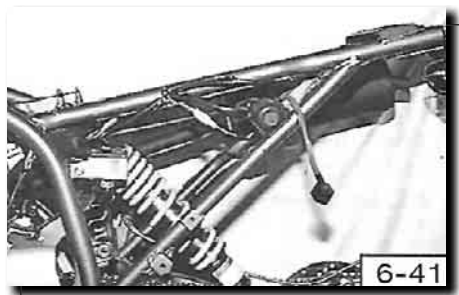
01. remove the cover.
02. Turn ignition switch ON and then press the starter button.
03. The starter relay is normal to hear a "clicking" sound.
If there is no clicking sound (Fig. 6-41)
 - 1). Inspect the starter real voltage.
 - 2). Inspect the starter relay ground circuit.
 - 3). Check for continuity between the starter relay wires. (Fig. 6-42)
04. Connect the starter relay wires to a 12V battery (Fig. 6-42A)
05. Connect the starter motor terminals to an electric tester and check for continuity between the terminals (Fig. 6-42A)
06. Replace the starter relay with a new one if there is no continuity (Fig. 6-42A).

6-4-7. Starter motor installation

01. apply engine oil to the starter motor O-ring and then install the O-ring.
02. Install and tighten the two mounting bolts.
03. install the starter motor wire lock nut and rubber cover.



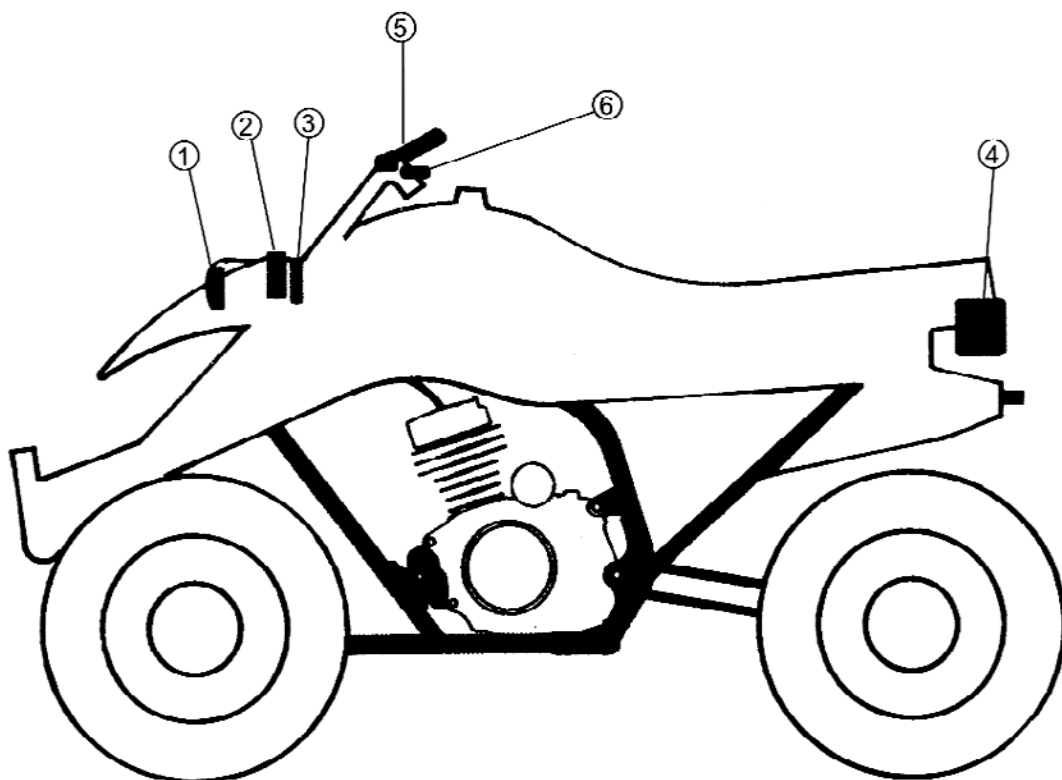
ELECTRIC DETAILS



ELECTRIC DETAILS

6-5. LIGHTS/INSTRUMENTS/SWITCHES BRIEFING

- | | | | |
|------|--------------------|-------|-------------------|
| 01). | head light | (02). | main switch |
| 03). | neutral light | (04). | taillight |
| 05). | engine stop switch | (06). | Hi/Lo beam switch |



ELECTRIC DETAILS

6 - 5. LIGHTS/INSTRUMENTS/SWITCHES

NOTE

SERVICE INFORMATION

Headlight	12V 18W/18W	* 2
Stoplight/Taillight	12V 21W	* 1
Neutral beam indicator	12V 3,4W	* 1
Fuse	15A	

General Instructions:

1. All plastic plugs have locking tabs that must be released before disconnecting.
2. All plastic plugs have locking tabs that must be released before disconnecting.
3. An electric tester must be used for checking the continuity between two points.
4. The electric tester also contains a voltmeter which can be used to measure the voltage.
5. Different bulbs have different specifications. When replacing, use a new bulb of the same specification.
6. The continuity check can be made without removing the switch from vehicle.

NOTE

TROUBLESHOOTING <Q-A>

<Q-A> Light does not come on?

- Burnt bulb
- Faulty ignition or light switch
- Fuse burned out
- Dead battery or loose battery wire

<Q-A> Light comes on but dims?

- Weak battery
- High wire or switch resistance.
- Aged bulb or faulty lighting circuit

<Q-A> Operating the light switch, headlight beam does not change?

- Faulty or burnt bulb
- Faulty light switch
- Loose wire connection

ELECTRIC DETAILS

6-5-1. Light/switch/wire ... inspection

01. removal the front cover (Fig. 6-43)
02. check front lamp wire (Fig. 6-44)
03. check the front lamp bulb (1) (Fig. 6-45)
04. check the neutral position lights (1) (Fig. 6-46)
05. check the neutral lights-AC generator wire (Fig. 6-47)
06. removal the stop/taillight (Fig. 6-48)
07. replace the bulb (Fig. 6-49) be follows bulb specification
08. check the stop/taillight (Fig. 6-50)

NOTE

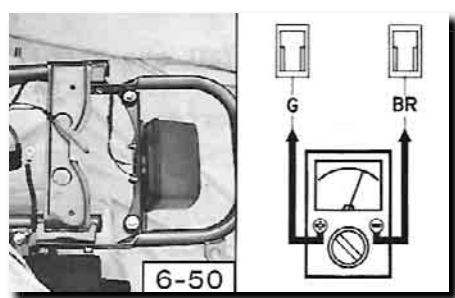
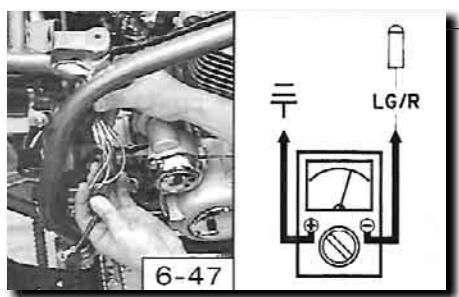
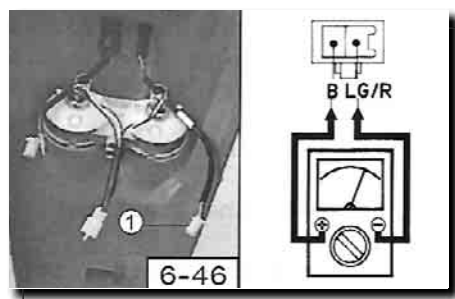
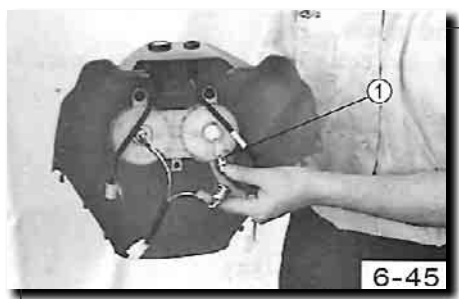
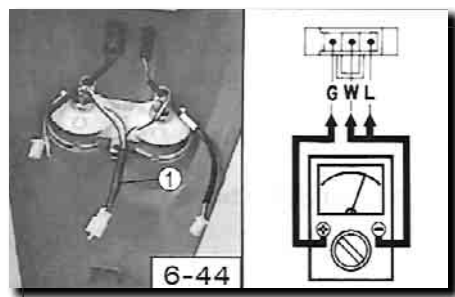
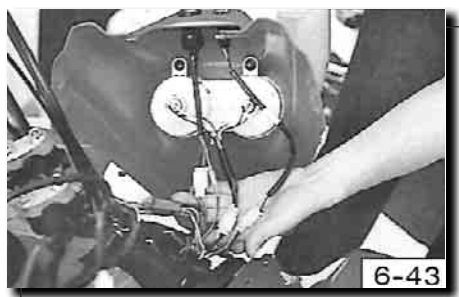
IN THE NEUTRAL POSITION, THE GREEN INDICATOR LIGHT WILL GO ON, AND THE IGNITION SWITCH SHOULD BE AT "ON 1" OR "ON 2" POSITION.

NOTE

(OPTION) THE SCOP LIGHT, L & R SINGLE LIGHT, FLASHER, ... ARE THE DEVICES FOR CERTAIN AREA REGULATION -- DETAILS REFER TO EACH AREA IMPORTER.



ELECTRIC DETAILS



ELECTRIC DETAILS

6-5-2. Main switch inspection

01. the main switch (1) (Fig. 6-51)
02. check the ON (Fig. 6-52)
03. check the NO 2 (Fig. 6-53)

NOTE

1. ON 1: ENGINE CAN BE STARTED AT THIS POSITION.
2. ON 2: ENGINE CAN BE STARTED AT THIS POSITION AND THE HEADLIGHT AND TAILLIGHT COME ON AT THE SAME TIME.
3. OFF: ALL ELECTRICAL CIRCUITS ARE SWITCHED OFF. THE KEY CAN BE REMOVED IN THIS POSITION.

6-5-3. Handlebar switches (1) (Fig. 6-54)

01. check the start button (2) (Fig. 6-55)
02. check the engine stop switch (3) (Fig. 6-56)
- 03- check the Hi/Lo beam switch (4) (Fig. 6-57)

NOTE

"LO" POSITION IS FOR LOW BEAM AND FCAILLIGHT. "HI" POSITION IS FOR HIGH BEAM AND TAILLIGHT.

CAUTION

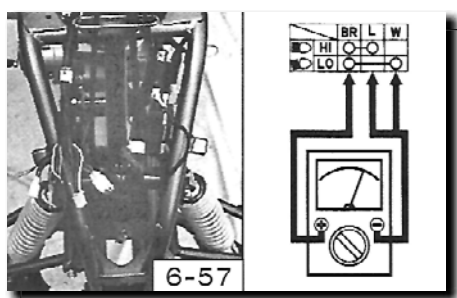
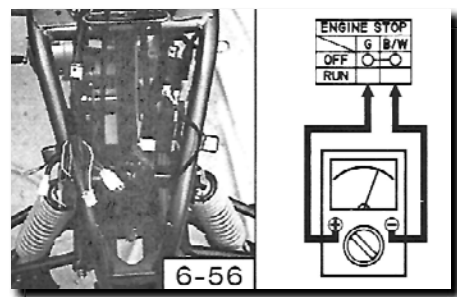
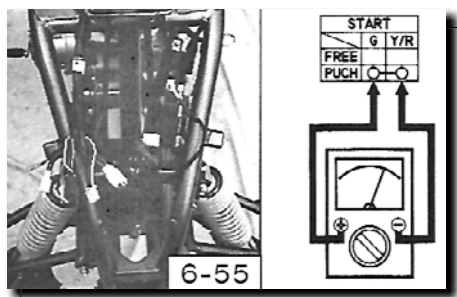
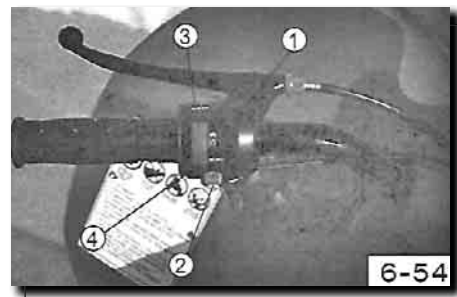
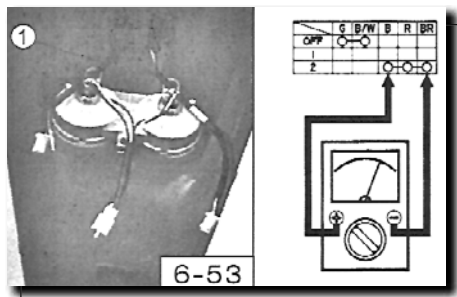
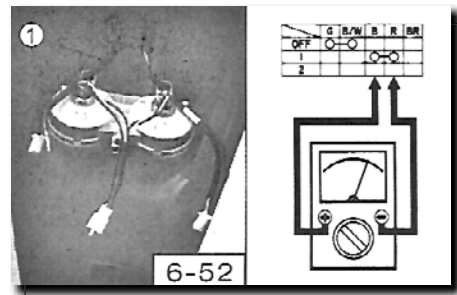
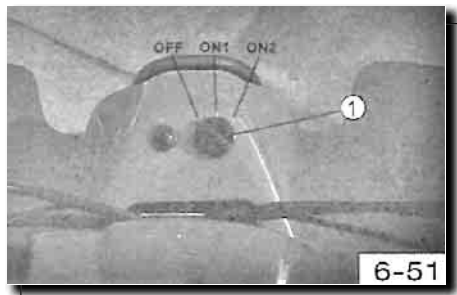
DO NOT PUSH STARTER BUTTON MORE THAN FOUR SECONDS EACH TIME, WHICH WILL CAUSE THE STARTER OVERHEAT AND DAMAGE THE STARTER. DURING ENGINE RUNNING, DO NOT PRESS STARTER BUTTON TO AVOID STARTER & ENGINE DAMAGE.

NOTE

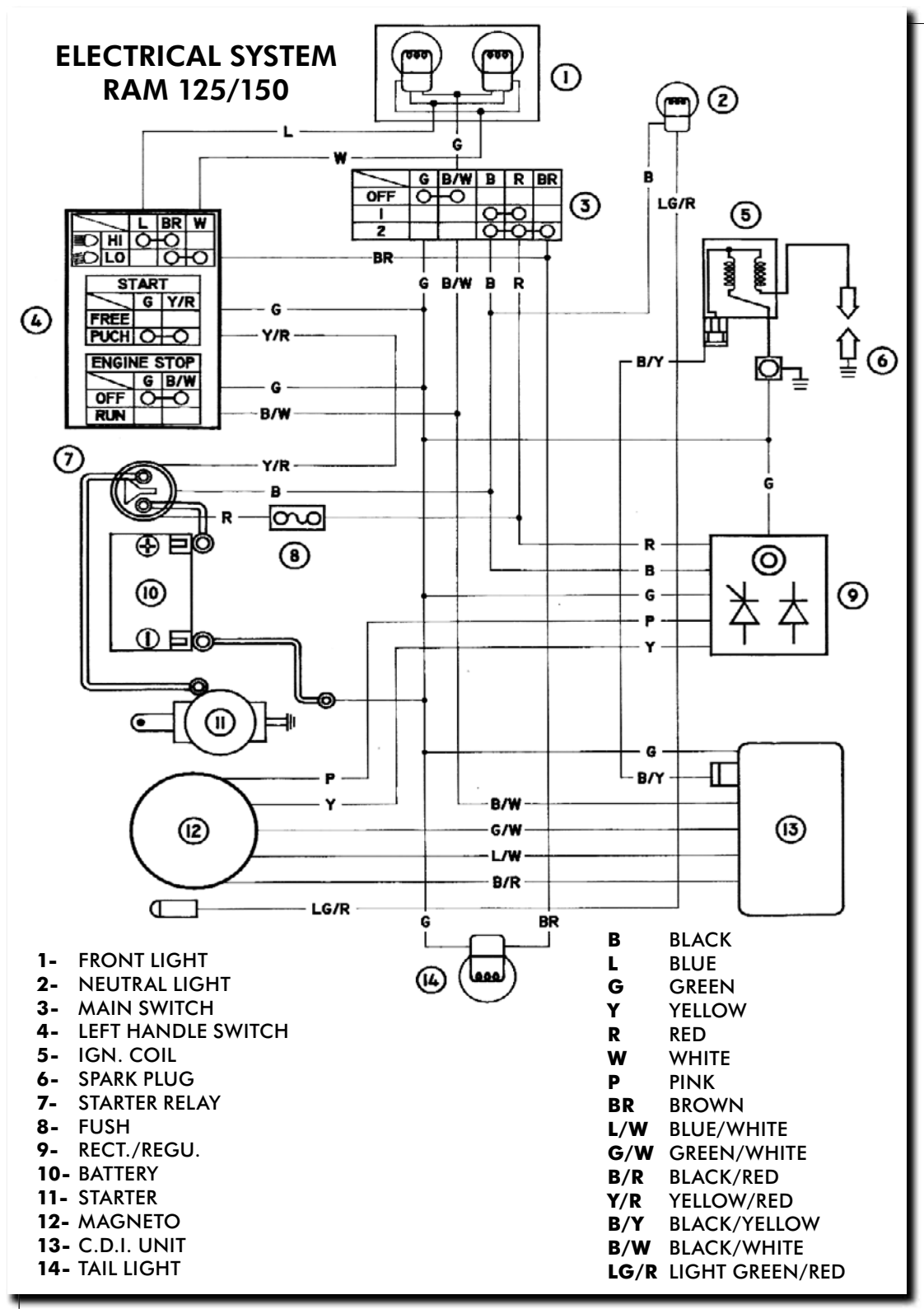
(OPTION) THE STOP LIGHT, L & R SINGLE LIGHT, FLASHER, ... ARE THE DEVICES FOR CERTAIN AREA REGULATION -- DETAILS REFER TO EACH AREA IMPORTER.



ELECTRIC DETAILS



ELECTRIC DETAILS



PROBLEMS SHOOTING

PART 7. PROBLEMS SHOOTING

NOTE

THE FOLLOWING PROBLEMS SHOOTING DOES NOT COVER ALL THE POSSIBLE CAUSES OF TROUBLE. IT SHOULD BE HELPFUL, THE GUIDE TO PROBLEMS SHOOTING ON THIS SECTION AND THE OTHERS ON EACH PARTS.

REFER TO THE RELATIVE PROCEDURE IN THIS MANUAL FOR INSPECTION, ADJUSTMENT, AND REPLACEMENT OF PARTS SUCH AS PART 5 ELECTRIC, PART 5 CHASSIS, OR PART 4 ENGINE DETAIL ON CASES OF <Q-A> MAY HELP.

- 7-1. Engine does not start or hard to start
- 7-2. Poor performance (especially at low and idle speed)
- 7-3. Poor performance (engine lacks power)
- 7-4. Poor performance (at high speed)
- 7-5. Poor charging (battery over discharge or overcharge)
- 7-6. Spark plug has no function
- 7-7. F. or R. Brake Performance Poorly
- 7-8. Shock absorber Malfunction
- 7-9. Instable Handling

NOTE

STANDARD MOTOR CORP. IS CONTINUALLY STRIVING TO IMPROVE BY TAKING MODIFICATION OR SIGNIFICANT CHANGES ON ALL MODELS. ALL NECESSARY FURTHER INFORMATION WILL BE AVAILABLE ON EACH AREA IMPORTERS.

NOTE

1. THE REPLACEMENT OWNER'S MANUAL AND TOOL KIT ARE AVAILABLE FROM EACH AREA IMPORTER OR TERRITORIAL DISTRIBUTOR.
2. THE PARTS LISTS ARE AVAILABLE FROM EACH AREA IMPORTER OR TERRITORIAL DISTRIBUTOR.
3. BE SURE TO USE ONLY GENUINE MAKER PARTS FOR REPLACEMENT.

PROBLEMS SHOOTING

7-1. ENGINE DOES NOT START OR HARD TO START

7-1-1. Check if fuel reaches carburettor by loosening drain screw

A. Fuel does not reach carburettor

- 1). No fuel in tank
- 2). Clogged fuel line between fuel tank and carburettor
- 3). Clogged float chamber passage
- 4). Clogged fuel filter
- 5). Clogged charcoal canister
- 6). Clogged fuel valve strainer
- 7). Clogged fuel valve passage
- 8). Clogged carburettor air balance tube
- 9). Deteriorated fuel or fuel containing water or foreign material

B. Fuel does reach carburettor --- refer 7-1-2.

7-1-2. Remove the spark plug and install it into spark plug cap to test spark by connecting it to the engine ground

A. Weak or no spark

- 1). Faulty spark plug
- 2). Fouled -spark plug
- 3). Faulty GDI unit
- 4). Faulty pulse coil
- 5). Faulty exciter coil
- 6). Faulty ignition switch
- 7). Broken or shorted ignition coil

B. Good spark --- refer to 7-1-3.

7-1-3. Test cylinder compression

A. Low or no compression

- 1). Faulty or slipping clutch
- 2). Valve clearance too small
- 3). Leaking valve
- 4). Worn cylinder and piston rings
- 5). Leaking cylinder head gasket

B. Normal compression --- refer to 7-1-4.

PROBLEMS SHOOTING

7-1-4. Start engine again

A. Engine fires but does not start

- 1). Faulty choke control system
- 2). Leaking intake manifold
- 3). Incorrect ignition timing or incorrectly adjusted air screw

B. Engine does not fire --- refer to 7-2-5.

7-1-5. Remove the spark plug and test it again

A. Wet spark plug

- 1). Flooded carburettor
- 2). Throttle valve excessively open
- 3). Clogged air cleaner

B. Dry spark plug

7-2. POOR PERFORMANCE (ESPECIALLY AT LOW AND IDLE SPEED)

7-2-1. Check ignition timing

A. Incorrect

- 1). Faulty GDI unit
- 2). Faulty pulse coil

B. Correct --- refer to 7-2-2.

7-2-2. Check carburettor air screw adjustment

A. Incorrectly adjusted

- 1). Mixture too lean (Turn screw in)
- 2). Mixture too rich (Turn screw out)

B. Correctly adjusted -- refer to 7-2-3.

7-2-3. Check carburettor gasket for air leaks

A. Air leaks

- 1). Faulty intake manifold gasket
- 2). Loose carburettor lock nut
- 3). Broken heat insulator
- 4). Cracked vacuum tube

B. No air leaks --- refer to 7-2-4.

PROBLEMS SHOOTING

7-2-4. Remove the spark plug and install it into spark plug cap to test spark by connecting it to the engine ground

A-. Weak or intermittent spark

- 1). Faulty or fouled spark plug
- 2). Faulty CDI unit
- 3)- Faulty A.C. generator
- 4). Faulty ignition coil
- 5)- Faulty ignition switch

B. Good Spark --- refer to 7-2-5.

7-2-5. Check A.C. generator

A. Faulty

- 1). Faulty A.C. generator
- 2). Damaged or cracked vacuum tube
- 3) . Clogged air vent hole

B. Good

7-3. POOR PERFORMANCE (ENGINE LACKS POWER)

7-3-1. Start the engine and accelerate lightly

A. Engine speed does not increase sufficiently

- 1). Clogged air cleaner
- 2;. Restricted fuel flow
- 3). Clogged fuel tank cap breather hole
- 4). Clogged exhaust muffler
- 5). Carburettor fuel level too low
- 6). Clogged carburettor high speed fuel passage

B. Engine speed increases --- refer to 7-3-2.

7-3-2. Check ignition timing with a timing light

A. Incorrect

- 1). Faulty CDI unit
- 2). Faulty pulse coil

B. Correct --- refer to 7-3-3.

PROBLEMS SHOOTING

7-3-3. Check valve clearance

A. Incorrect

- 1). Incorrectly adjusted valve clearance
- 2). Excessively worn valve seat (Protruded valve stem)

3. Correct --- refer to 7-3-4.

7-3-4. Test cylinder compression

A. Too low

- 1). Faulty valve seat
- 2). Worn cylinder and piston
- 3). Leaking cylinder head gasket
- 4). Incorrect valve timing

B. Normal --- refer to 7-3-5.

7-3-5. Checking carburettor for clogging

A. Clogged

- 1). Clean and unclog

B. Not clogged --- refer to 7-3-6.

7-3-6. Remove the spark plug for check

A. Fouled or discolored

- 1). Fouled spark plug
- 2). Incorrect valve timing

B. Not fouled or discolored --- refer to 7-3-7.

7-3-7. Check crankcase for excessive or dirty engine oil

A. Excessive oil

- 1). Oil level too high
- 2). Oil level too low
- 3). Oil not changed

B. Normal oil level --- refer to 7-3-8.

PROBLEMS SHOOTING

7-3-8. Check cylinder head for oil lubrication

A. Abnormal

- 1). Clogged oil cooler
- 2). Clogged oil line
- 3). Faulty oil pump

B. Normal --- refer to 7-3-9.

7-3-9. Check for engine overheating

A. Overheating

- 1). Worn cylinder and piston
- 2). Mixture too lean
- 3). Poor quality fuel
- 4). Excessive carbon build-up in combustion chamber
- 5). Ignition timing too advanced

B. Not overheating --- refer to 7-3-10.

7-3-10- Accelerate or run at high speed

A- Engine knocks

- 1). Excessive carbon build-up in combustion chamber
- 2). Poor quality fuel
- 3). Slipping clutch
- 4). Mixture too lean
- 5). ignition timing too advanced

B. Engine does not knock

PROBLEMS SHOOTING

7-4. POOR PERFORMANCE (AT HIGH SPEED)

7-4-1. Check ignition timing

A. Incorrect

- 1). Faulty CDI unit
- 2). Faulty pulse coil

B. Correct --- refer to 7-4-2.

7-4-2. Check valve clearance adjustment

A. Incorrect

- 1). Incorrect adjustment or worn valve seat

B. Correct --- refer to 7-4-3.

7-4-3. Check fuel filter for fuel supply

A. Abnormal

- 1). No fuel in fuel tank
- 2). Clogged fuel filter
- 3). Clogged fuel tank cap breather hole

B. Normal --- refer to 7-4-4.

7-4-4. Check carburettor for clogged jets

A. Clogged

- 1). Clean

B. Not Clogged --- refer to 7-4-5.

7-4-5. Check valve timing adjustment

A. Incorrect

- 1). Cam sprocket aligning marks not aligned

B. Correct --- refer to 7-4-6.

7-4-6. Check valve return spring tension

A. Broken or weak

- 1). Faulty spring

B. Good

PROBLEMS SHOOTING

7-5. POOR CHARGING (BATTERY OVER DISCHARGE OR OVERCHARGE)

7-5-1. Start the engine and measure the limit voltage between the battery terminals

A. Battery voltage is normal

- 1). Dead battery
- 2). Faulty battery

B. Battery voltage does not increase --- refer to 7-5-2.

7-5-2. Measure the resistance of the A.C. generator coil

A. High resistance

- 1). Faulty coil
- 2). Broken pink and yellow wires
- 3). Shorted pink and yellow wires

B. Normal --- refer to 7-5-3.

7-5-3. Connect the regulator/rectifier socket red wire to (-) and frame body to (-). Measure the voltage between them

A. Battery has no voltage

- 1). Broken red wire

B. Battery has voltage

7-5-4. Check the regulator/rectifier coupler for loose connection

A. .Abnormal

- 1). Faulty regulator/rectifier
- 2). Poorly connected coupler

B. Normal

- 1). Faulty A.C. Generator

7-5-5. Connect the regulator/rectifier black wire to (+) and frame body to (-). Measure the voltage between them

A. Ignition switch "ON" battery has no voltage

- 1). Broken black wire

B. Ignition switch "ON" battery has voltage --- refer to 7-5-&.

7-5-6. Check the regulator/rectifier coupler for loose connection

A. Loose connection

- 1). Poorly connected coupler

B. Normal

- 1). Faulty regulator/rectifier

PROBLEMS SHOOTING

7-6. SPARK PLUG HAS NO FUNCTION

7-6-1. Replace with a new spark plug and test again

A. Good spark

- 1). Faulty spark plug

B. Weak or no spark --- refer to 7-6-2.

7-6-2. Check spark plug cap and ignition coil wire for looseness

A. Loose

- 1). Loose spark plug cap

B. Not loose --- refer to 7-6-3.

7-6-3. Check the CDI unit wire coupler for looseness

A. Abnormal

- 1). Poorly connected coupler

Normal --- refer to 7-6-4.

7-6-4. Check for continuity and measure the resistance between the CDI unit wire coupler terminals

A. Abnormal --- refer to 7-6-4.

B. Normal --- refer to 7-6-5.

Be Checked related parts;

A. Abnormal

- 1). Faulty ignition switch
- 2). Faulty exciter coil
- 3). Faulty pulse coil
- 4). Faulty ignition coil

B. Normal

- 1). Broken wire harness
- 2). Loose coupler connection

7-6-5. Check the CDI unit with a CDI tester

A. Abnormal

- 1). Faulty CDI unit

B. Normal --- refer to 7-6-5.

Check the ignition coil with a CDI tester

A. Abnormal

- 1). Faulty ignition coil

PROBLEMS SHOOTING

7-7. F. OR R. BRAKE PERFORMANCE POORLY

7-7-1. F. Drum brake poor

Check:

- 1). brake shoe wear out, or
- 2). worn or rusty brake drum, or
- 3). improperly adjusted brake free play. or
- 4). improper brake cam lever position, or
- 5). improper bake shoe position, or
- 6). fatigue/damage return spring, or
- 7). oily or grassy brake shoe, or
- 8). oily or grassy brake drum, or
- 9). brake cable broken

7-7-2. R. brake poor

Check:

- 1). brake pad wear out, or
- 2). brake disc bent or wear out, or
- 3). fatigue/damage return spring, or
- 4). damage ratchet, or
- 5). oily or grassy brake disc, or
- 6). oily or grassy brake pad. or
- 7). brake hose broken, or
- 8). brake fluid leaking

7-8. SHOCK ABSORBER MALFUNCTION

Check:

- 1). bent or damaged damper rod, or
- 2). damaged oil seal lip, or
- 3). fatigued shock absorber spring



PROBLEMS SHOOTING

7-9. INSTABLE HANDLING

7-9-1. check handlebar for any improperly installed or bent

7-9-2. check steering for any;

- 1). incorrect toe-in
- 2). bent Steering shaft
- 3). improperly installed steering shaft
- 4). damaged bearing or bearing race
- 5). deformed steering knuckles

7-9-3. check tire for any;

- 1). uneven tire pressure on L & R side
- 2). incorrect tire pressure
- 3). unevenly worn tires

7-9-4. check wheels for any;

- 1). incorrect wheel balance
- 2). deformed wheel
- 3). loose bearing
- 4). bent or loose wheel axle
- 5). excessive wheel run-out

7-9-5. check frame for any;

- 1). twisted
- 2). damaged frame
- 3). improperly installed bearing race

7-9-6. check swing-arm for any;

- 1). worn bearing or bush
- 2). bent or damaged

7-9-7. check rear shock absorber

- 1). fatigued spring
- 2). improperly adjusted spring prolate
- 3). oil leakage

7-9-8. check drive chain for any improperly adjusted chain slack

APPENDIX

PART 8. APPENDIX

8-1. NOTES OF PRE-DELIVERY INSPECTION

The dealer or service station will assemble and inspect the ATV according to the following pre-delivery checklist before delivering to the customer.

ITEMS	CONTENTS
Appearance	* check the overall out-looking and correct any surface damage or missing parts
Battery	* fill with electrolyte * charge battery properly
valves	* check valve clearances * check cam chain tension
Spark plug Carburettor	* check gap * check idle speed, synchronization, starter operation
Fuel line	* check fuel hose routing and ensure that clamps are in proper position
Engine oil. Cables	* check engine oil (4-stroke) level * check for proper routing and free play on throttle, brake, clutch
Clutch Brakes	* check operation * check operation, free play, fluid level * check parking brake operation
Drive chain.	* Drive chain. * check free play
Wheels	* check tire pressure and wheel run out * check wheel nut torque
Steering Suspension Drive lever	* check turning operation * check operation * check operation
Fittings Fasteners Electrical	* check headlight * check all for loose or missing hardware * check all light and switch operations * check safety switches for proper operation
Ignition	* check ignition timing
Final	* check and correct any damage or missing parts * re-check and tighten all screw, nuts, bolts. * Comprobar la manejabilidad y observar cualquier ruido anormal. * test ride and observe any abnormal noise y owner's manual, tools pack, low-pressure gauge * re-check end-user's information



APPENDIX

Standard Motor Corp.

- Sports Quads 125/150/170/250cc

SK - 125/150/170/250cc (double light)

STGs - 125/150/170/250cc (double light + separate front fender)

BL - 125/150/170/250cc (single light)

STGb - 125/150/170/250cc (single light + separate front fender)

APPENDIX

8-2. UPDATE INFORMATION - 170CC & BLAST MODEL

> for page 2-1. General Specification

Weight(125/150/170):	152 Kg. / 154 Kg. / 155 Kg.
Engine	4 Stroke Air-Cooled
Cylinder	Single - Forward Inclined
Bore * Stroke	125 cc: 56,5 x 49,5 mm; 150 cc: 62 x 49,5 mm 170 cc: 65,0 mm x 49,5 mm
Displacement	124,5 cm ³ ; 149,5 cm ³ ; 164,5 cm ³
Carburettor	DTG-017 or PD-19D KEIHIN

> for page 3-22

3-25. Replacing the headlight on BLAST model

CAUTION

THE ONLY DIFFERENCE ON BLAST (BL) MODEL IS FRONT LAMP COVER AND FRONT LAMP SET, WHERE WITH THE E-MARK LAMP REGULATION.

01. Remove the front cover as introduction
02. Put new bulb and secure it in place with the bulb holder
03. Reinstall the headlight back

<see the picture attachment - procedure>

> for page 4-4

NOTE

Service Information for Fuel System and Carburetion

Main Jet:	150 cc en # 102, 170 cc en # 108
Slow Jet:	150 cc en # 40, 170 cc en # 40

for page 4-26

NOTE

SERVICE INFORMATION FOR CYLINDER/PISTON

	STANDARD (MM)	SERVICE LIMIT (MM)
<Cylinder>		
01. Cylinder bore	65	65,1
<Piston/Piston Ring>		
03. Piston O.D.	170 cc 64,97 - 64,99	64,8 o menos

APPENDIX

8-3. UPDATE INFORMATION - EEC 92\61 ON ROAD MODEL

The special model for European On Road Homologation will have many different specification than other areas that all details should be refer to the local riding laws and regulations before riding this ATV.

CAUTION

THE ATV FOR OM-ROAD USE HAS TO MATCH THE LOCAL RIDING LAWS AND REGULATION. ALL DETAILS SHOULD BE PROVIDED BY EACH AREA IMPORTER ONLY.

Different Portion: it will have some difference

01. Speedometer
02. E-mark Mirror
03. Integral Brake system (one brake for 4 wheeler)
04. Tire should have E-mark
05. Light or blinker should have E-mark
06. Muffler with E-mark under Emission control
07. S-mark Horn
08. Others: steering lock, air tube, seat, wire system, ...

NOTE

REFER TO REFERENCE PICTURE SET.

CAUTION

THE ON ROAD ATVS WILL HAVE DIFFERENT TIRE PRESSURE, ... SPECIFICATION THAT SHOULD BE PROVIDED BY EACH AREA IMPORTER ONLY.

CAUTION

THE ON ROAD ATVS WILL HAVE SOME DIFFERENT IDENTIFICATION NUMBER, ID PLATE, OR WARNING LABEL.

CAUTION

THE ON ROAD ATVS WILL HAVE SOME DIFFERENT PAPER OF DOCUMENTS WITH THE VEHICLE THAT SHOULD BE PROVIDED BY EACH AREA IMPORTER ONLY.

CAUTION

THE ON ROAD ATVS MAYBE ALLOW MORE THAN SINGLE RIDER, HOWEVER, IT IS NOT RECOMMENDED BY MAKER FOR MORE THAN SINGLE RIDER TO OPERATE ON ROUGH DRIVING CONDITION.

CAUTION

THE ON ROAD VEHICLE SPECIFICATION WILL BE NOT ALLOWED TO MAKE ANY MODIFICATION FOR MORE SPEED OR OFF-ROAD DUTY. IF SO, THERE WILL BE OUT OF ON ROAD STANDARD THAT MAKER WILL MAKE NO ANY RESPONSIBILITY ON PRODUCTS WARRANTY OR ANY DEFECT MATTER.

By: Sales and Service Department of NACIONAL MOTORS, S.A.U.

For Territorial Distributor:

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